User Manual
For Authorized Service Technicians

AEROTOP T Air-Water Heat Pump with LOGON B WP61

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Product Overview

AEROTOP T
The air-water heat pump AEROTOP T is available in the following models:

AEROTOP T..C
The designation AEROTOP T..C includes the following models:

- AEROTOP T..C
- AEROTOP T..CX

AEROTOP T..
The designation AEROTOP T.. includes the following models: :

- AEROTOP T07-T35
- AEROTOP T..X
- AEROTOP T..R
- AEROTOP T..RX

Compact models ..C..
Up to models AEROTOP T12C and AEROTOP T10CX the heat pumps are compact design with integrated buffer tank, electrical resistance, expansion vessel and circulation pump.

Single-phase models ..X..
Up to modesl AEROTOP T10X and T10CX single-phase versions are also available.
All other models are three-phase

Reversible models ..R..
The reversible heat pumps can be used, as well as for heating, even for the active cooling

Model for outdoor installation
With the right accessories the AEROTOP T are also suitable for outdoor installation (not T.. C..).

Legal guidelines
Warranty conditions
Receiving inspection

General information

- The calculations, sizing, installa-installations and putting into service related to the products described in this document may only be carried out by qualified specialists
- Comply with the requirements of local law, which may differ from the information contained herein
- Subject to change.

These instructions are for aproper installation, adjustment and maintenance of the machine. It is therefore necessary to read carefully the instructions given below and to install, test and maintain the heat pump by technicians qualified by specific training.
At the end of the warranty period, the manufacturer assumes no responsibility for mechanical, hydraulic or electrical changes.
In the case of operations not expressly authorized, executed in violation of these instructions, the warranty will become void with immediate effect.
During the installation must meet the specific safety statements. Check that your mains supply correspond to the data of the heat pump (nameplate).
These instructions and the wiring diagram of the heat pump should be stored with due care and, if necessary, be made available to the personnel responsible .

The manufacturer declines any responsibility for damage to persons or property caused directly or indirectly from failure to follow these instructions.
The housing may only be opened by a qualified technicians.

L**imitations and Guidelines**
The construction and the manufacture of heat pump meets all the requirements of European standards. (See EC Declaration of Conformity).
The electrical connection of the heat pump must be performed in compliance with the applicable ASE, EN and IEC. Should also observe the connection conditions of the local energy supply

Warranty Conditions
Our performance guarantee shall lapse for damage due to:

- misuse or non standard use
- installation or commissioning incorrect by the purchaser or from other.
- Use of the system with pressure excessive or outside the factory values
- Failure to follow directions in the instructions for use

The warranty for heat pumps for heating is 24 months from the date of delivery.For the rest, the conditions of sale, delivery and warranty in accordance with the order confirmation.

Control Input

The units are delivered on a wooden pallet with an adequate protective packaging.
Upon delivery, check the unit for shipping damage and that the budget is complete.

If damage is found, they must be reported immediately to the transport document with a warning: "Acceptance qualified as a result of blatant corruption."

Given that overloading can cause serious damage to heat pump and plant heat source side, it is forbidden to operate the heat pump if the following conditions exist:

- drying of the construction.
- plant is not completed (building shell).
- windows and exterior doors are not finished and closed.

In these cases it is necessary to provide a heating pipeline. A functional heating or heat pump ready pose in according to the DIN EN 1264 should be only taking into account the above conditions. Furthermore, keep in mind that after the sizing of the heat pump for normal operation may not be possible to generate all the necessary thermal power.
Observe the following guidelines:

- Comply with the regulations and requirements of the manufacturer of mortars for screed coat!
- Correct operation is only possible with a system installed in a workmanlike manner (the hydraulic, electrical, settings)! Otherwise, the screed coat may be damaged!

Low energy consumption use of the heating with heat pump

The decision to opt for a heating system with heat pump is a valuable contribution to protecting the environment by reducing emissions and reduced use of primary energy. In order for the new heating system will work efficiently, note the following points:

The heating system with heat pump must be sized and installed with care.

The lower is the flow temperature of the heating water side, the more efficient is the operation of the heat pump.

Give preference to a short-term intensive aeration of the premises. Compared to the windows always open in the tilted position, this immediate ventilation reduces the consumption of energy.

AEROTOP T

High Degree of Efficiency and Optimized Defrosting
Thanks to the correspondingly dimensioned air heat exchanger as well as the unique defrosting system, the AEROTOP T heat pump is especially efficient and a cost-saver. This heat pump always exceeds the required degree of efficiency (coefficient) of 3.0 (COP at A2W35).
Frost forms on the air exchanger, the evaporator, if the exterior temperature is less than 5°C. This results in ice formation and as a consequence reduced the heat exchange and with that the efficiency of the heat pump. The evaporator must be defrosted to remove this frost or ice. However, the defrosting process, carried out by the AEROTOP T by reversing the cooling circuit, is cumbersome since the heat pump does not yield any energy during the defrosting process but still uses electricity. However, this is frequently unnecessary since frost formation depends on the humidity in the air. Instead of the unnecessary defrosting at timed intervals, the AEROTOP T determines the correct time to defrost the unit using a progressive and well thought out logic with different performance parameters in the cooling circuit. Thanks to this procedure, the unit rarely requires any defrosting during winter, if any at all, which is a great advantage.

Cooling with AEROTOP TR
The purpose of heat pumps is primarily to supply a building with heat. However, the technology can also be used to cool a building in the summer.
This involves actively generating the cooling energy through a process reversal of the heat pump. In case of distributor systems specifically designed for cooling (fan coil or similar), the cooling capacity of the heat pump can be transferred optimally to the building. Cooling ceilings also have a good cooling capacity and comfort level. Floor heaters, however, are only partially suited and provide a limited cooling effect. Radiator heaters are unsuitable.

Cascade
Thanks to the new heat pump controller LOGON B WP61, it is possible to link and operate several heat generators of a system in a cascade arrangement. Cascades with up to 4 heat pumps, or a bivalent operation in combination with fossil heat generators are feasible. When using a cascade formation, the heat generators switch on or off depending on the current energy demand: If the currently running heat pump cannot satisfy the energy demand within a specific time, an additional heat pump/heat generator switches on.

Quiet Operation
Regardless whether installed indoors or outdoors, the air-water heat pump AEROTOP T is characterized by comparatively very low noise emissions. This is possible thanks to the high-performance fan, the very advantageous air routing, the noise--dampening insulation of the cladding, as well as the multi-dampened support of the cooling circuit. Additional noise insulation elements are available for most variants to reduce sound emissions further. AEROTOP T heat pumps are quiet and efficient. However, incorrectly integrating constructional components may result in undesired noise increases if the conditions are unfavorable.

Flexible and Space-Saving
Some air-water heat pumps are relatively bulky due to the required cross-sections for the air ducts or application options are severely limited. Thanks to the clever utilization of the geometric properties of the radial fan, AEROTOP T are among the most flexible, space saving air-water heat pumps.
Especially noteworthy is the fact that the heat pump can be placed into the left or right corner of the utility room when not using the air ducts.
The exhaust opening is easily moved on-site from the left to the right and even to the top without having to use any additional tools. The intake opening can also be selected as desired without special accessories. AEROTOP T heat pumps are also suitable for outdoors installation when using the corresponding accessories.

AEROTOP T

Enclosure and Special Components
The enclosure consists of a frame that is completely free of thermal bridging, sound dampened, and specifically developed for use with heat pumps. The cladding and panels feature a high-grade insulation to sound-dampen and thermally insulate the unit.
A pedestal or base is not required since the feet of the unit feature a vibration-dampening design.
All panels can be detached for easy access to the internal elements of the unit and for control or configuration tasks.

The high-performance radial fan ensures the unit runs efficiently and quietly.
The high performance cooling circuit is mounted on a vibration-dampened support and features a thermostatic expansion valve, filter dryer, inspection glass, high-pressure pressure controller with manual reset, and a low-pressure pressure controller with automatic reset function. The hermetic scroll compressor is mounted on a double vibration-dampened support.
The evaporator consists of a large-area finned tube heat exchanger made from aluminum and copper; the condenser consists of a welded chromium steel high performance plate heat exchanger. The environmentally friendly refrigerant R407C is used as the working medium. A flow monitor on the consumer side ensures trouble-free cooling for reversible heat pumps.

Brief Description of the LOGON B WP61 Controller
Plain text display unit, control and protection of the cooling circuit, defrost logic, malfunction display and diagnostics, control of a sliding or mixed heating circuit, service water heating, storage tank charging, control of the electrical auxiliary heater, expandable for several mixed heating circuits.

LPB system bus with up to 15 heating circuits per segment, bivalent operation with additional heat generator (oil/gas), cascade of several HPs. cooling function, improved solar function (heating support, pool, PWH), pool function, controlling the multi-phase electrical heating elements.

Selectable Connections
The connections for heater flow and return, condensate drain, and electrical connections can be placed on the left or right side during the on-site installation and even directed towards the bottom when installed outdoors.

Operating the heat pump is prohibited if the following conditions exist:

- Construction drying
- System/unit used in unfinished buildings
- Windows or exterior doors unfinished and locked.

These cases require the use of a specific construction heating system. Functional heating or surface-ready heating with the heat pump acc. to DIN EN 1264 is only permitted when complying with these conditions. Furthermore, it must be noted that the design of the heat pump concerning its standard operation may not yield the full extent of the required heat output. The following notes must be observed as well:

- Comply with the corresponding standards and rules of the floor/ screed manufacturer!
- Proper function is only ensured with a correctly installed system (hydraulics, electrical, settings)!

Deviations may damage the floor/ screed!

Safety, Transport and Installation

Safety Information

- Compliance with all rules and instructions of all documentation, labels, type plates, and associated documents of the unit is mandatory.

Transport

- When receiving the shipment, the heat pump must be checked for completeness as per order confirmation .In case of damaged or missing material, the carrier must be informed in writing immediately.
- Care and due diligence are required during transport, setup, preparation, or when handling heavy materials that may damage the heat pump.
- Make sure that towing ropes, belts, or chains used for transport or installation do not damage the heat pump. Do not allow the heat pump to swing back and forth when lifting it up. Never tilt the heat pump more than 15° from its vertical axis.
- The heat pump is affixed to a pallet at the factory for transport and covered with a protective film to protect the unit from scratches. Do not remove the packaging until the heat pump is positioned at its final location.

Setup

- Setup must be carried out carefully and accurately.
- AEROTOP T heat pumps can be installed on a level interior floor without pedestal or base.
  If installed outdoors, a pedestal or base is required unless the substrate is very firm and can support the load.
- The installation room must have at least one exterior wall. Rooms with high humidity are unsuitable as installation locations for AEROTOP T heat pumps. A condensate drain must be available.
- The heat pump must be set up on a level ground and aligned with the adjustable feet. Make sure there is sufficient space to access the control panel and at the sides for inspections and maintenance.
- Make sure the ground is able to support the load of the heat pump and all accessories. The floor or ground must be free of dust and other foreign particles. If installing in the basement, make sure the selected installation position cannot be flooded.
- The heat pumps may not be placed on floating floorings.
- Once moved to its final location, the heat pump must be carefully unpacked and removed from the pallet. Protect heat pump from impact and other damaging forces!

Installation

- The safety regulations and schemes/diagrams must be strictly observed.
- The accessories and additional equipment must be installed by a trained service technician (heating contractor) as per the enclosed assembly and installation instructions.
- The noise emissions of the AEROTOP T heat pump are very low thanks to the sound-absorbing materials used to mount the mobile parts and the insulating cladding. The effective noise value depends also on the size of the installation room, the noise-absorbance or reflection of the materials in the room, as well as the possibility of the noise to spread and transfer via solid bodies, among others.
- Air ducts, pipes, and electrical lines must be attached to the masonry and not the heat pump.
- All of these connections must be established using flexible connections so that they can swing freely, especially when the compressor or evaporator starts up. Only then is it possible to avoid transference of sound from solid bodies to the building structure as well as line breakages.

Observe the checklist notes when selecting the installation site for the correct setup of an air-water heat pump

Transport

To avoid transport damages, the heat pump must remain packaged and on the wooden pallet and transported to its final installation location with a hand lift, pushcart, or similar equipment.

- Make sure the heat pump does not slip on the equipment used for transport.
- Components and piping of the cooling circuit, the heater side, and the heat source side may never be used for transport purposes.
- Note the weight of the heat pump.
- Make sure the water hoses and electrical lines are not damaged during transport.
- Only lift and transport the heat pump at and with the unit's bottom panel.

Hydraulic Connections, Condensate Drain

Heating System Hydraulic Connections
AEROTOP T heat pumps can be connected in any desired layout. The hydraulic connections require flexible ducts to avoid noise transference from pipe openings and solid bodies to the distributor network and from there to the heating elements such as radiators, etc. The ducts can be directed from the right or left and are connected to the inside of the heat pump.

The ductwork must be carried out in such a way that pressure drops at the nominal volume flow do not exceed the available pressure since this would result in a reduction of the heat pump output. This means that ducts cannot have elbows that are too narrow.

Pipes and ducts must also be sufficient insulated to prevent unnecessary heat loss and the formation of condensate, which could damage the pipe and duct system or the installation location.

Dimensions
Heater flow Ø 1” (T07-T16),
Ø 1 1/4” (T20-T35),
flexible. Heater return Ø 1” (T07-T16),
Ø 1 1/4” (T20-T35), flexible,
Condensate Drain Ø 25/31mm, flexible.

For each heat pump we offer hydraulic standard schemes. The integration of these variants guarantee a safe and faultless operation.

The system must be thoroughly flushed before connecting to the heat pump.

Residues in the heat pipes lead to damages on the heat exchangers und to malfunction of the heat pump. Especially if there is no buffer storage it is recommended to a dirt trap in the heating return flow.

The water filled into the heating system must be handled in accordance with the rules and regulations of the relevant professional associations.

It is important to ventilate the heating system. If not the correct operation of the heat pump is affected. Therefore an exhauster must be provided. The compact heat pumps have an exhauster installed in the flow.

Condensate Drain
The condensate drain should be as close to the heat pump connection as possible. To prevent room air or canalization waste air from being sucked into the heat pump, the condensate drain must be connected airtight to the heat pump using a siphon with a min. height of 100 mm. The condensate drainage pipe cross--section may not be reduced and must be at a continuous 2% incline to ensure water can be sufficiently drained.

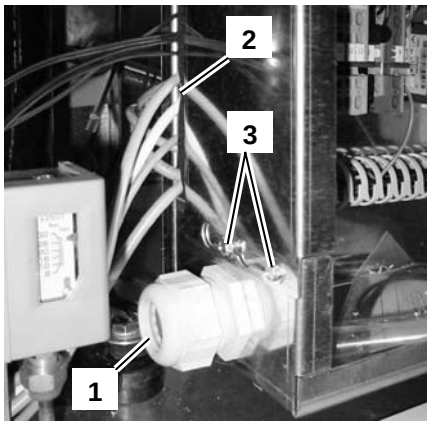
Changing the Hydr. and Electr. Connections
Lines are connected at the left side of the unit by default. If the right side is preferred, the panels (1 and 2) can be switched with the panels from the left side. Ducts and cables are pulled to the other side inside of the unit and through the opening in panel 1.

Electrical Connections

General

Electrical Connections and Control Information
The electrical connections must be established in compliance with local rules and regulations. The current feed may exhibit a max. tolerance of 2% with this power intensity when a voltage of 10% exists. Do not connect the heat pump if the phase difference exceeds more than 2%. (EN 60439-1)
Operating the equipment outside of the listed limit values will void the warranty. If necessary, please contact your local electricity company or utility. The internal wiring of the heat pump is carried out at the factory as listed on the electrical diagram included with the unit.
The heat pump is equipped with an electrical supply box containing the components listed below.

- An automatic cutout switch or a 3 phase, slow-blow fuse with neutral conductor must be provided externally in compliance with the technical requirements.
- The low voltage cables (control) may not be placed in the same cable conduits or ducts as the supply cables.
- The exterior temperature sensor of the controller must be attached to the outside wall of the building in a location protected from the after-noon sun and other heat sources (open windows, chimneys, etc.). Northern and northeastern exposures are preferred.
- If the room impact is to be activated for a remote control, this control unit must be placed in a reference room (e.g. living room) where it cannot be influenced by an external heat source (e.g. stoves, heaters, air flow, etc.).



Cable Entry Point
1 Entry point for load cable 3 x 400V
2 Entry point for low voltage/sensor cable
3 Fastening screws
Detach screws (3) and push cover plate towards front. This makes it easier to pull through the low voltage cables (2). After inserting the cables, push cover back into place and refasten the screws (3).

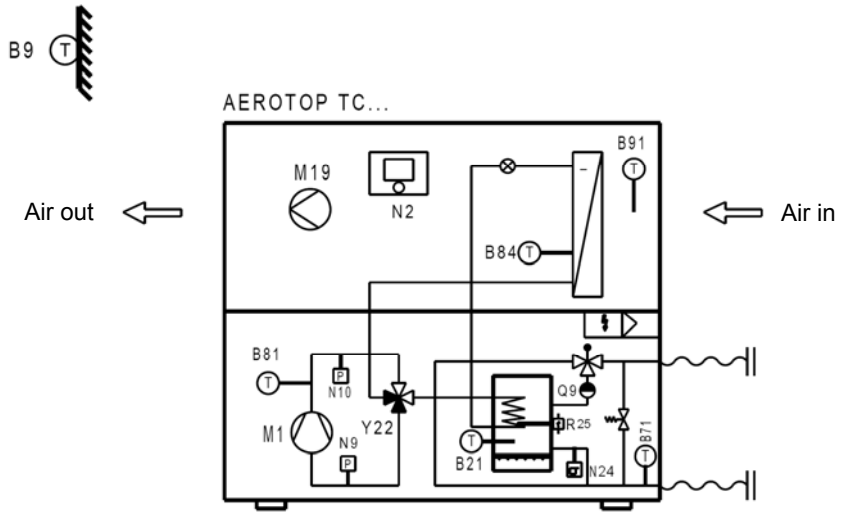
Main Power

Heat Pump Models (Also applies to same models in reversible (R) designs.	**Ext.-Fuse**	**Cross-section terminal board**
	[A]	**[mm²]**
AEROTOP T07CX (X)+ Electrical Heating Element R25 (6kW)	1x50	16
AEROTOP T10CX (X)+ Electrical Heating Element R25 (6kW)	1x63	16
AEROTOP T07C/T10C/T12C+Electrical Heating Element R25 (6kW)	20	4
AEROTOP T07/T10/T12+Electrical Heating Element R25 (6kW)	20	6
AEROTOP T14/T16 +Electrical Heating Element R25 (6kW)	25	6
AEROTOP T20	25	10
AEROTOP T26	32	10
AEROTOP T32-35	40	10

Electrical Connections

Unit Design, Terminal Assignment

AEROTOP T..C..



Controller terminal assignment of components wired at the factory:

	Description	RVS61 Slot	RVS61 Output
N9	Low pressure	K	E9
N10	High pressure	K	E10
N24	Flow monitor consumer	P	EX3
Q9	Condenser pump	V	Q9
Y22	Process reversal valve Y22	W	QX1
R25	Electrical heater element 1 flow	W	QX2
B81	Hot gas temperature sensor 1	f	B81
B21	Heat pump flow temp. sensor	n	B21
B71	Heat pump return temp. sensor	q	B71
B91	Source intake temp. sensor	r	B91
B84	Evaporator temp. sensor	s	B84/B92
M19	Fan	z	UX

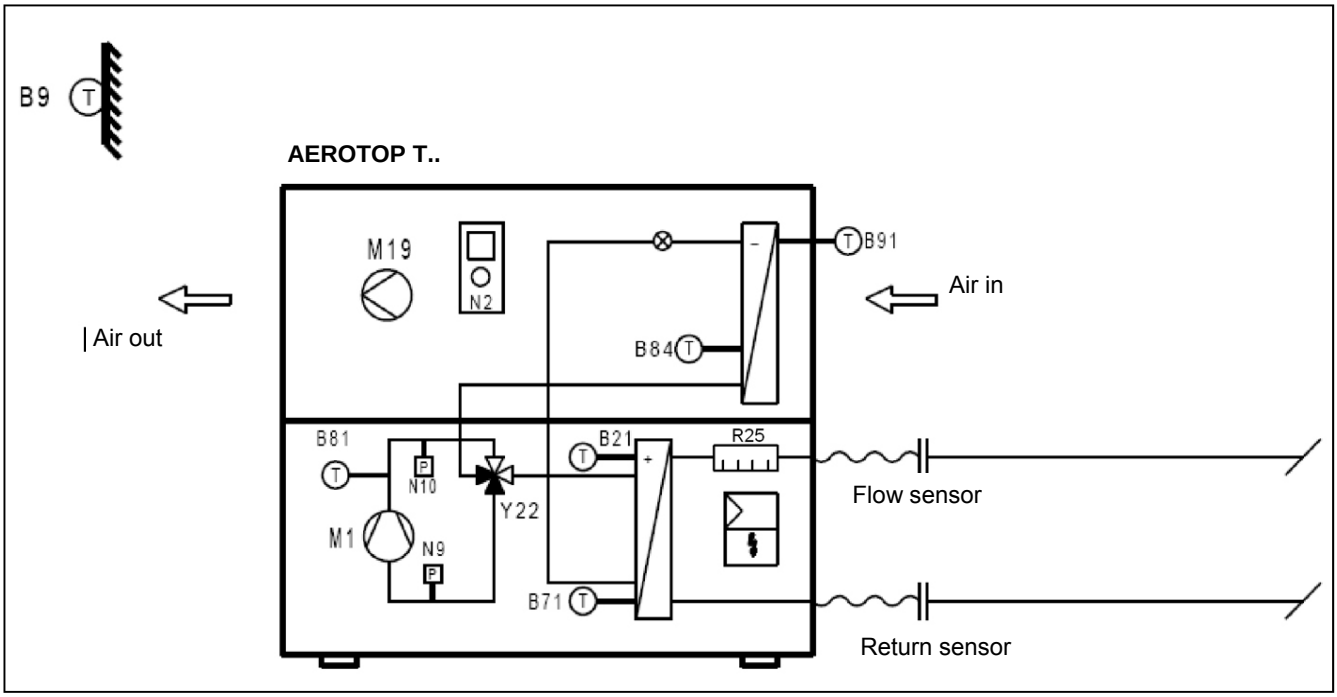
Other important components to be wired in the system

	Description	RVS61 Slot	RVS61 Output
B9	Outdoor temperature sensor	k	B9

Please consult the electrical diagram of the heat pump for complete terminal assignments and electrical connections.

Electrical Connections

Unit Design, Terminal Assignment



Controller terminal assignment of components wired at the factory:

	Description	RVS61 Slot	RVS61 Output
N9	Low pressure	K	E9
N10	High pressure	K	E10
Y22	Process reversal valve Y22	W	QX1
R25	Electrical heater element 1 flow (only with AEROTOP T07 to T16)	W	QX2
B81	Hot gas temperature sensor 1	f	B81
B21	Heat pump flow temp. sensor	n	B21
B71	Heat pump return temp. sensor	q	B71
B91	Source intake temp. sensor	r	B91
B84	Evaporator temp. sensor	s	B84/B92
M19	Fan	z (AEROTOP T07-T16) U (AEROTOP T20-T35)	UX (AEROTOP T07-T16) Q8-K19 (AEROTOP T20-T35)

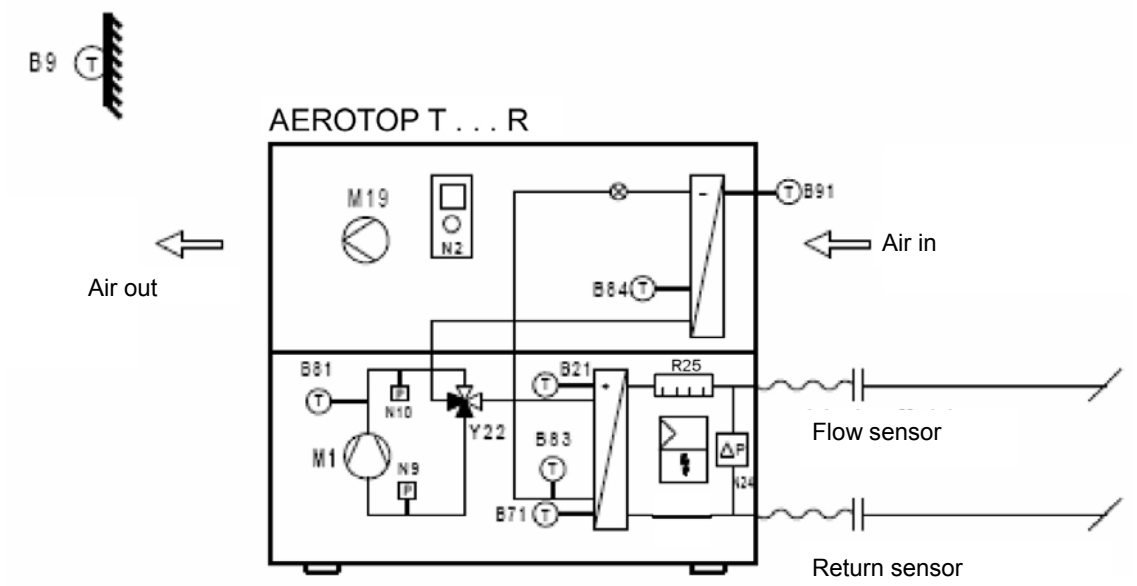
Other important components to be wired in the system

	Description	RVS61 Slot	RVS61 Output
Q9	Condenser pump	V	Q9
B9	Outdoor temperature sensor	k	B9

Please consult the electrical diagram of the heat pump for complete terminal assignments and electrical connections.

Electrical Connections

Unit Design, Terminal Assignment



Controller terminal assignment of components wired at the factory:

	Description	RVS61 Slot	RVS61 Output
N9	Low pressure	K	E9
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R25	Electrical heater element 1 flow (only with AEROTOP T07 to T16)	W	QX1
Y22	Process reversal valve Y22	W	QX2
B81	Hot gas temperature sensor 1	f	B81
B21	Heat pump flow temp. sensor	n	B21
B71	Heat pump return temp. sensor	q	B71
B91	Source intake temp. sensor	r	B91
B84	Evaporator temp. sensor	s	B84/B92
B83	Liquid refrigerant sensor B83	y	BX5
M19	Fan	z	UX

Other important components to be wired in the system

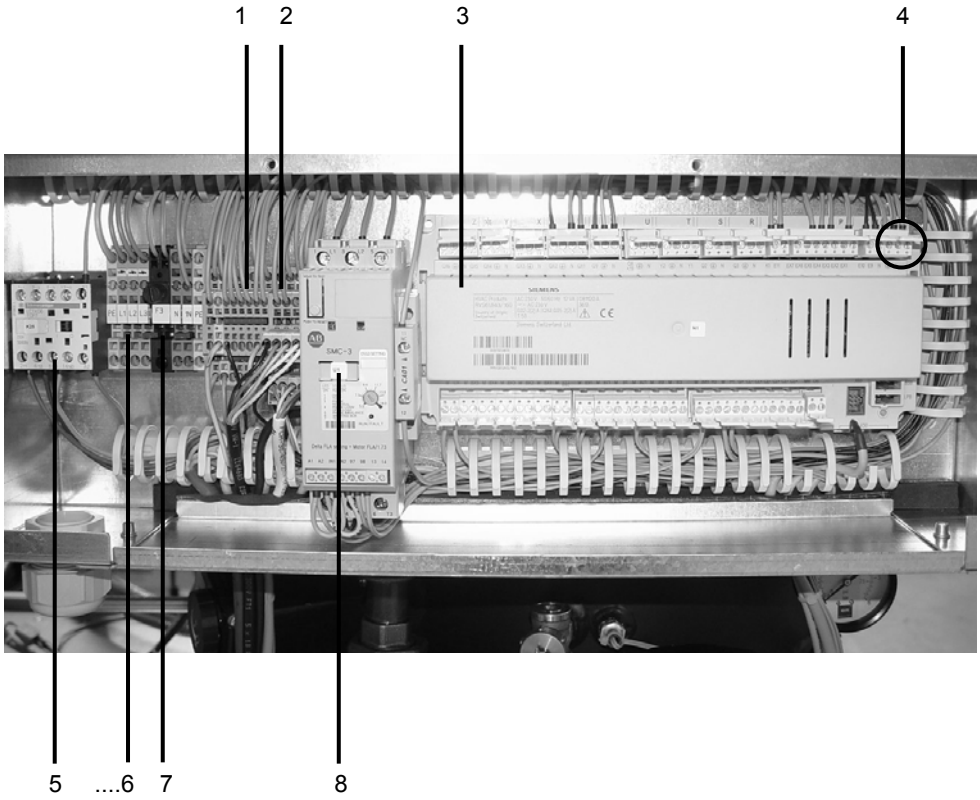
	Description	RVS61 Slot	RVS61 Output
Q9	Condenser pump	V	Q9
B9	Outdoor temperature sensor	k	B9

Please consult the electrical diagram of the heat pump for complete terminal assignments and electrical connections.

Electrical Connection

Switch box

AEROTOP T..C



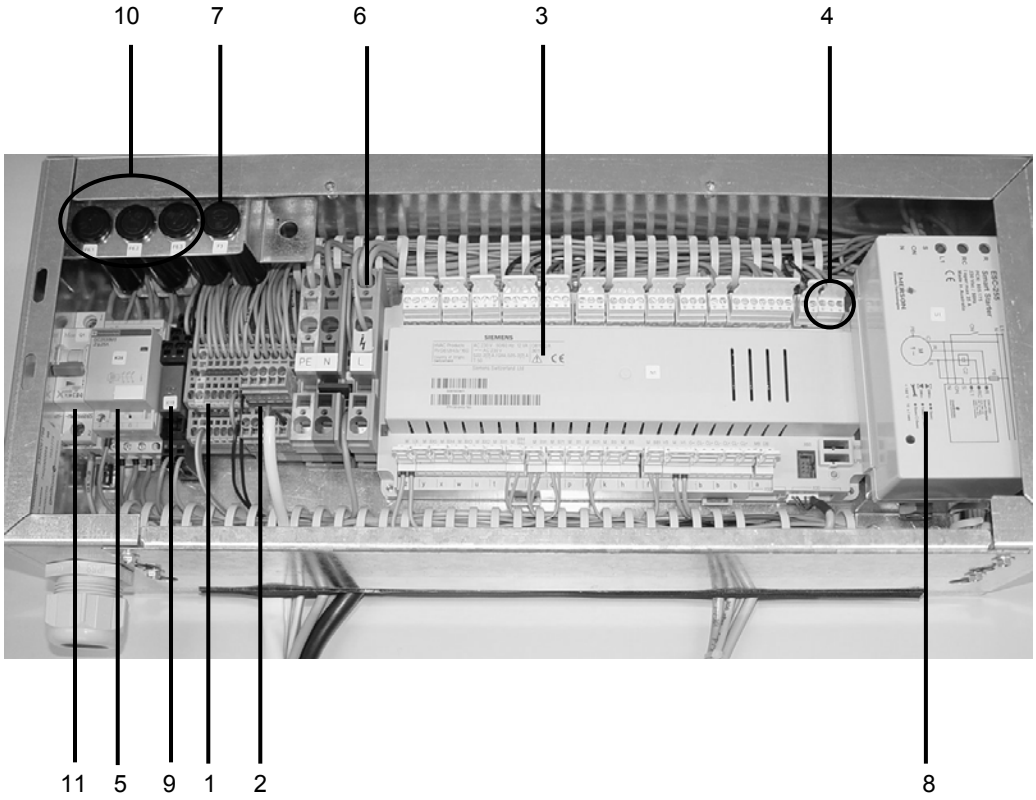
Legenda:

1 Terminal strip consumer, power station blockage
2 Terminal strip Fan Contactor / oil sump heater
3 Heat pump controller LOGON B WP61
4 Mains supply plug:
Mains connector phase AC 230 V
Main connector neutral connector
5 Contactor electric heating element
6 Main incoming supply 3*400V
7 Fan fuse / control fuse (F3)
8 Soft-starter and rotary current relay

Electrical Connection

Switch box

AEROTOP T..CX

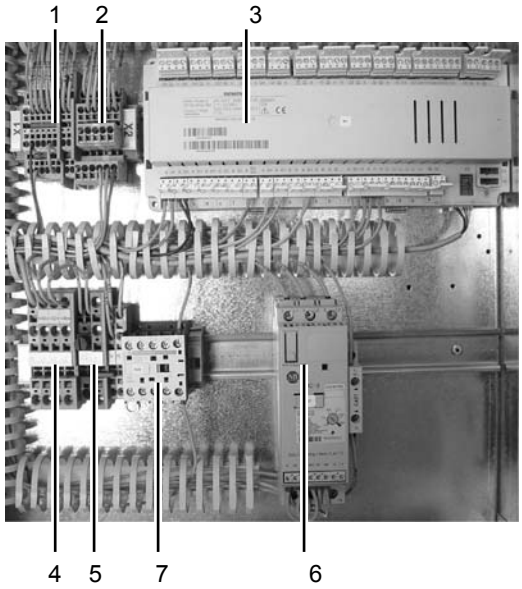


Legenda:

1 Terminal strip consumer, power station blockage
2 Terminal strip Fan Contactor / oil sump heater
3 Heat pump controller LOGON B WP61
4 Mains supply plug:
Mains connector phase AC 230 V
Main connector neutral connector
5 Contactor electric heating element
6 Main incoming supply 3*400V
7 Fan fuse / control fuse (F3)
8 Soft-starter and rotary current relay
9 Fan Contactor
10 Electr. heater element fuse F6.1/F6.2/F6.3
11 Compressor fuse

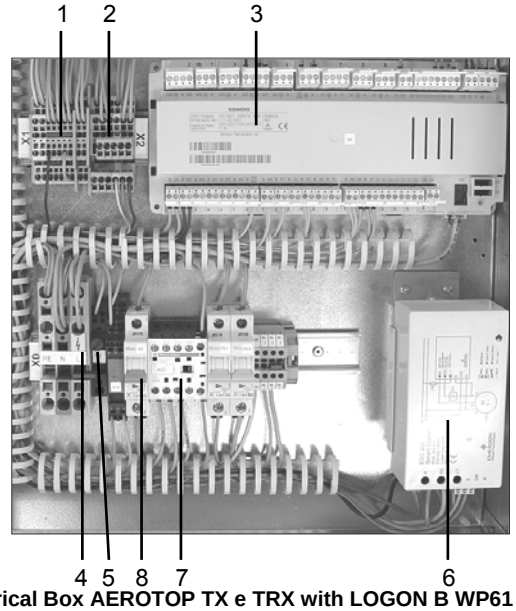
Electrical Connection

Switch box



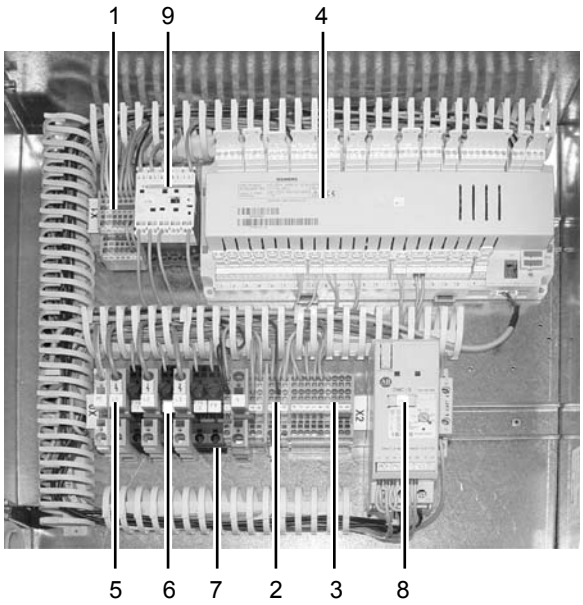
Electrical Box AEROTOP T07-T16 with LOGON B WP61

1 Terminal block consumer (EC block / source flow monitor)
2 Terminal block fuse fan / oil sump heater
3 Heat pump controller RVS61
4 Main incoming supply 3*400V
5 Fan fuse / control fuse
6 Soft-starter and rotary current relay
7 Contactor electric heating element



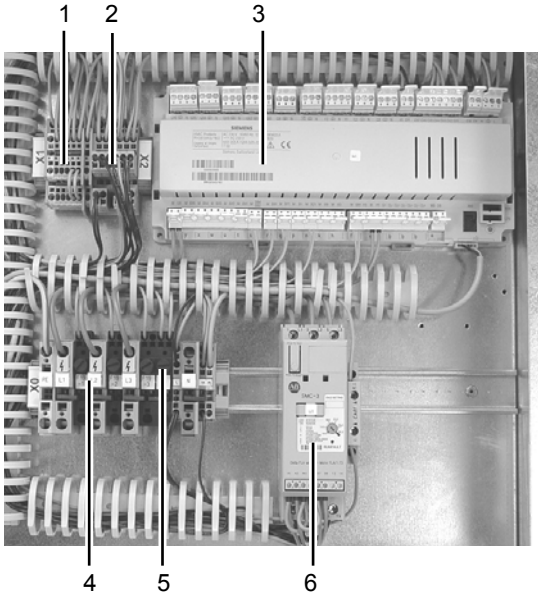
Electrical Box AEROTOP TX e TRX with LOGON B WP61

1 Terminal block consumer (EC block / source flow monitor)
2 Terminal block fuse fan / oil sump heater
3 Heat pump controller RVS61
4 Main incoming supply 3*400V
5 Fan fuse / control fuse
6 Soft-starter and rotary current relay
7 Contactor electric heating element
8 Compressor Fuse



Electrical Box AEROTOP T20-T35 with LOGON B WP61

1 Terminal block consumer (EC block / source flow monitor)
2 Terminal block foil sump heater
3 Terminal block Fan contactor
4 Heat pump controller RVS61
5 Main incoming supply 3*400V (L1, L2, L3)
6 Fan fuse (F19-1-2-3)
7 Control fuse (F3)
8 Soft-starter and rotary current relay
9 Fan contactor K19



Electrical Box AEROTOP T20R-T35R with LOGON B WP61

1 Terminal block consumer (EC block / source flow monitor)
2 Terminal block fuse fan / oil sump heater
3 Heat pump controller RVS61
4 Main incoming supply 3*400V
5 Fan fuse / control fuse
6 Soft-starter and rotary current relay

Checklist

Correct Installation of an Air-Water Heat Pump

AEROTOP T heat pumps are quiet and efficient. However, incorrectly integrating constructional components may result in undesired noise increases if the conditions are unfavorable.
A careful assessment of the noise emissions is required when planning the installation of heat pump systems.

Noise reduction measures considered early on in the development process result in the fewest additional costs. Subsequent measures usually are extremely expensive and cumbersome to implement. [Heat Pump Manual, Federal Energy Agency, Switzerland]
The following points apply to the interior and exterior installation of air-water heat pumps.

To be considered when installing an air-water heat pump	
Each reflecting surface doubles the noise (acoustic power). One wall increases this value by +3dB, one corner by +6dB.	one corner by +6dB. Avoid solid-borne noise transmission by avoiding reflecting surfaces. Never route air intake or outlet into closed or partially closed spaces such as a corner, foyer, entrance area, covered patio, etc.
Rooms with reverberant or sound-reflecting floor coverings and walls increase the noise level.	Avoid rooms with reverberant or sound-reflecting floor coverings and walls. When installing the heat pump in a room with reverberant or sound-reflecting floor coverings and walls, reflections may increase the sound level. Cover one or two walls with noise-absorbing material if this is the case.
Be careful with dropping the washing	Dropping the washing from lived-in rooms to the place of installation of the heat pump can lead to noise transmission when unfavourably positioned.
Adherence with the min. clearances reduces noise reflection and air short-circuits and improves airflow near the fan.	Make sure the min. distances and clearances to the air intake and outlet as well as the min. size of the light wells are applied. Avoid walls or flow barriers around the circumference of the heat pump to ensure air can reach the fan evenly. Less pressure losses = low peripheral speed = reduction of the fan noise.
Construction measures can reduce noise, plants cannot.	Use constructional measures to interrupt the flow of noise from the heat pump (direct noise propagation). Use solid walls, fences, palisades, etc. to reduce noise levels. Plants, however, do not reduce noise.
Consider different noise sensitivity levels.	Avoid placing the heat pump where it may cause problems due to its noise emission (bedrooms, living rooms, neighbors, etc.). Position heat pumps in areas where noise is less likely to be an annoyance. If installed indoors, do not install underneath or next to living or sleeping quarters.
Sound absorbing materials reduce noise.	Additional sound absorbing materials or measures must be planned for and used in cases where extreme noise reductions are desired or when installing model Forever GREEN 20C or later. Use only original accessories and spare parts. in extreme cases, it may be advisable to consult a noise expert.
Separation from the structure minimizes structure-borne sounds.	Always use flexible connections throughout: Flexible hoses and tubes for heat distribution, flexible electrical connections, sound isolation of the air ducts by using elastic sleeves or Compriband products.
Correct installation of pedestal or base reduces structure-borne sounds.	The base or ground must be level or made level and able to support the load of the equipment. Use the adjustable feet of the heat pump to level the equipment after installation.
Correct installation of the ducts reduces air and structure-borne noise transference.	All wall openings and ducts must be equipped with the corresponding noise-absorbing materials. Comply with the specified cross-sections and dimensions.
Avoid air short-circuits and airflow barriers.	Air intakes and outlets cannot be installed next to each other without using a separating wall. Avoid any airflow obstacles that favor an air short-circuit.
Always comply with all rules, regulations, and applicable laws.	Germany: Technical Instructions on Noise Switzerland: Noise Protection Ordinance

Requirements, Parameterization, Upkeep

Requirements for Initial Startup (Commissioning)
The initial startup of the AEROTOP T heat pump must be carried out by our qualified technicians or the warranty will become void.

Operating the heat pump is prohibited if the following conditions exist:

- Construction drying
- System/unit used in unfinished buildings
- Windows or exterior doors unfinished and locked.

These cases require the use of a specific construction heating system.

Functional heating or surface-ready heating with the heat pump acc. to DIN EN 1264 is only permitted when complying with these conditions. Furthermore, it must be noted that the design of the heat pump concerning its standard operation may not yield the full extent of the required heat output. The following notes must be observed as well: The corresponding rules and regulations of the floor/screed manufacturer! Proper function is only ensured with a correctly installed system (hydraulics, electrical, settings)! Deviations may damage the floor/screed!

Ensure the following points are implemented and checked before the initial startup of the heat pump:

- The control box is installed and completely connected.
- The heat pump is professionally and completely installed (hydraulics and electrical).
- All external system components required for operating the heat pump (circulation pumps, three-way valves, sensors, etc.) are completely and professionally connected.
- The hydraulic connections have been established completely and professionally.
- All sensors are professionally installed, shielded, and positioned in the correct locations as outlined by the respective system scheme.
- The heating system is professionally installed and has been flushed, charged, vented, and checked for leaks as per rules and regulations.
- The electrical voltage meets the requirements listed on the type plate of the heat pump.
- All fittings are in operational position.

The following persons must be present to carry out the initial startup process:

- The planer; he or she must indicate the operational parameters.
- The installer; he or she is responsible for the functionality and settings of the hydraulic system.
- The system maintainer (customer or representative); he or she will be instructed in the operation and functions of the system.

If an initial startup is requested without all of these conditions having been met, ELCO rejects any responsibility for system malfunctions or other operational problems. In this case, the system is operated at the risk and responsibility of the owner.

Parameterization
The heat pump and the entire system is controlled with the integrated LOGON B WP61 controller. Please consult the system documentation for the correct parameter settings.

After the Initial Startup
After the initial startup is finished, the AEROTOP T heat pump does not require any additional interventions or adjustments to the controller.

Any desired heating temperature adjustments can be made in accordance with the enclosed user manual for the LOGON B WP61 controller.

Controller Function
Different temperature sensors and measuring elements in the heat pump, at the exterior air, in the system, in the storage tank, in the hot water tank, and possibly also in the living quarters are used by the controller.
If and as needed, the controller passes a heat demand signal to the heat pump.

The input of a heating curve is used to control and adjust heating temperatures. The heat pump as well as the system is controlled automatically.
The system-relevant parameters are entered when commissioning the climate-based controller.

Heat Pump Upkeep
The AEROTOP T heat pump does not require any special upkeep. However, it is important to keep the system clean and in good working order.
The specified leak checks must be carried out as well. From an energetic viewpoint, it is also recommended, especially in case of a new construction, to have the heating parameters checked and optimized by a service technician during the second winter after the initial startup since the initial humidity has now evaporated from the building and the required heating output is less than initially.

Primary focus should be on keeping air intake and outlet free of dust and other foreign particles or objects. The air intake and outlet openings must be kept free of obstructions (e.g. leaves, vehicles, debris).

Only trained and authorized service technicians are permitted to service AEROTOP T heat pumps.

The warranty becomes null and void if the system or heat pump is serviced by other persons or companies that are not authorized to do so.

Error Messages
AEROTOP T heat pumps function without problems as long as the different parameters do not deviate from the intended or specified values. If one or several of these parameters exceed the limit values, the controller depicts the corresponding error in plain text and stops the heat pump if required to protect the different components.
The different error messages are described in the LOGON B WP61 user manual. The heat pump is released again with some errors (automatic acknowledgement) once the intended status has been reached again. It is also usually possible to release the heat pump manually.

In order to ensure reliable functionality of your system, we recommend purchasing a maintenance/service contract.

Fan Speed Setting
AEROTOP TC: Setting of the Integrated Thermal Valve

Fan Speed Settings
The fan speed of the air-water AEROTOP T heat pumps can be directly adjusted on the LOGON B WP61 controller (parameter 3010). The following table serves as a reference for setting the fan speed based on the most important setup variants:

- A values refer to outdoor and corner setup.
- B values refer to setups with air duct on air intake and outlet (KWI + KFS) or with rigid air ducts (KSL).

AEROTOP T	A Value	B Value
T35(R)	64 %	69 %
T32(R)	56 %	61 %
T26(R)	72 %	77 %
T20(R)	60 %	65 %
T16(R)	55 %	60 %
T14(R)	50 %	55 %
T12(R) / T12C	42 %	47 %
T10(X+R+RX) / T10C(X)	70 %	75 %
T07(X+R+RX) / T07C(X)	50 %	55 %

Notes:
The setting must be increased by 5% if sound dampers are installed on the heat pump. This applies usually to the AEROTOP T20 to T35 models.
Please contact the technical support if you have any additional questions.

AEROTOP TC Heat Pump: Integrated Thermal Mixing Valve
The thermal mixing valve integrated into the compact heat pump routes a part of the flow water back to the buffer storage tank only if the flow temperature is below +30°C. This means the storage is heated immediately and the energy depot is available for the defrosting process of the evaporator. This upkeep function ensures a continuous defrosting process and the system can be operated even when the heating system is cold.

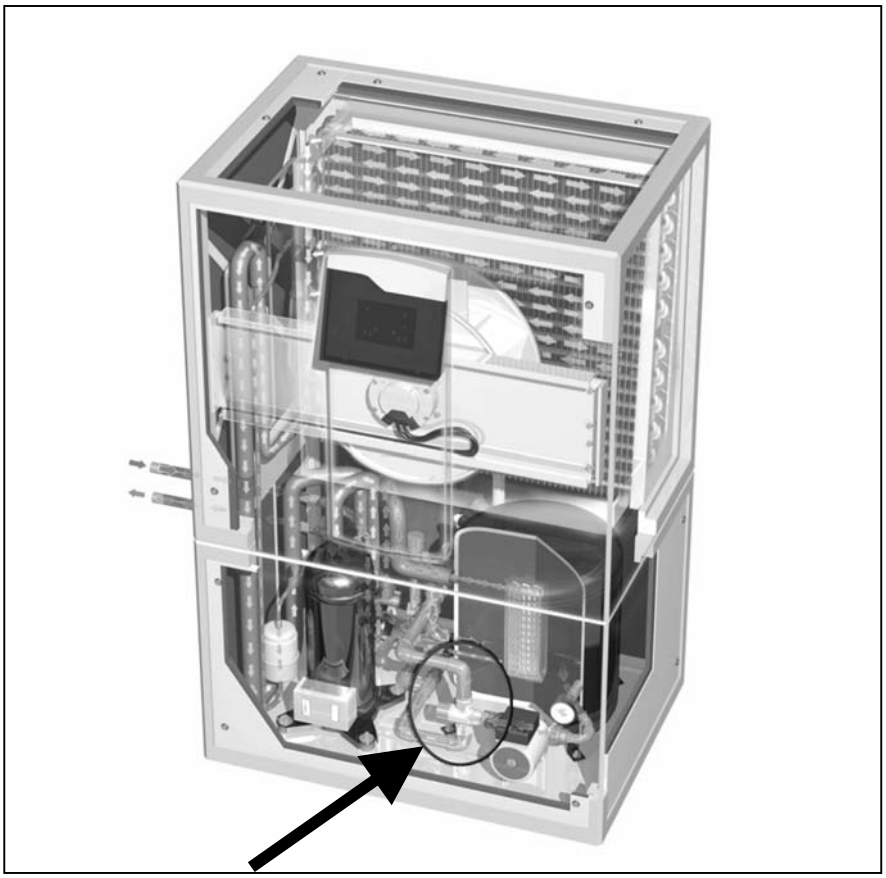
Settings of the Integrated Thermal Mixing Valve of the Heat Pumps

- AEROTOP T07C (manually adjustable valve with scale):

The factory setting of this valve is set with the scale to minimum (scale at 0) = crank completely closed
Important: The line marking for the adjustment is on the rear side of the valve.

- AEROTOP T10-12C (not manually adjustable, must use key):

The following applies to correctly adjust the setting: Open completely and then close with 3½ turns. Important: Set like this at the factory.



Indoor Installation

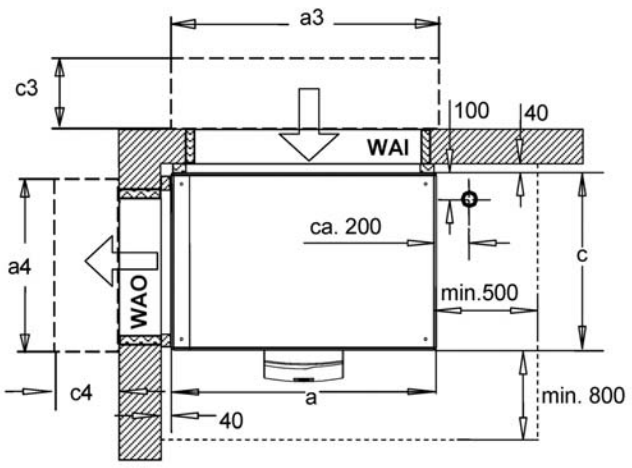
Corner Setup

AEROTOP T07...35 Corner Setup
If the heating or utility room has two exterior walls, a space-saving corner installation is ideal with the heat pump being placed into the left or right corner. Air ducts are not needed.

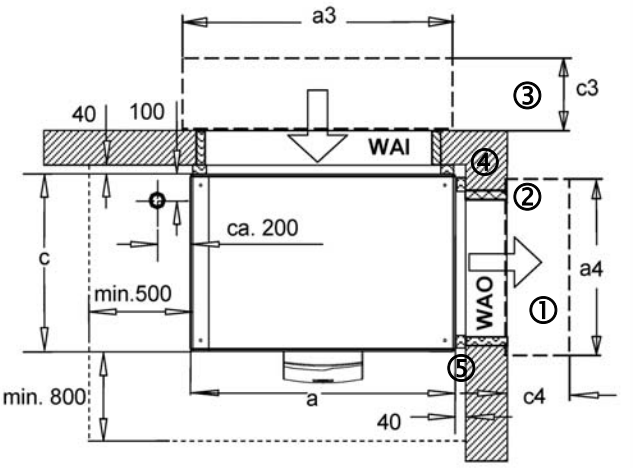
Required **Accessories:**
- WAI wall setup, suction side
- WAO wall setup, output side

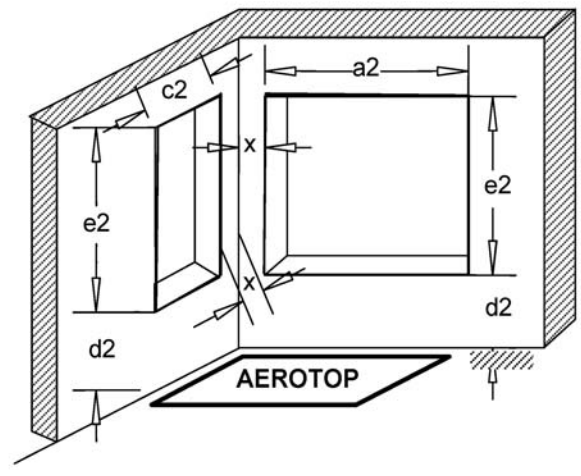
1) The compliance with acoustic limit values must be clarified by customer.
2) Necessary outside insulation by customer, minimal clearance of light well must not be gone below.
3) Possible air short-circuit to be prevented by customer.
4) Statistics to be checked by Customer
5) Distance from wall: min 20 mm, max 40 mm

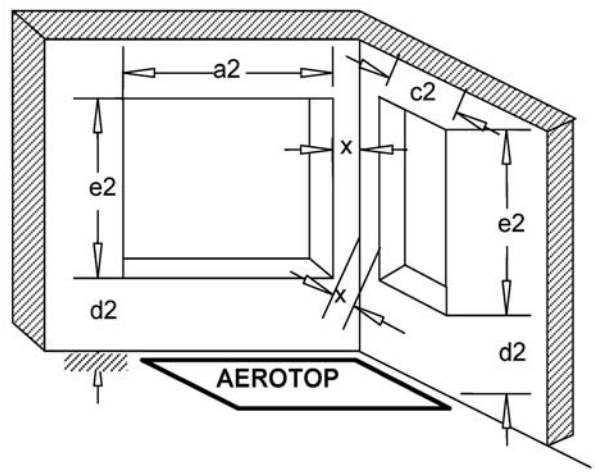
Left corner setup



Right corner setup







AEROTOP T	Width	Widt h	Heigh	Dimensions Of Both Cutouts, Without Insulation					Recommended Dimensions, Light Well			
	a	b	c	a2	c2	d2	e2	x	a3	c3	a4	c4
T07C, T07	995	1525	650	950	600	640	860	60	1200	600	800	600
T10C, T10	1095	1575	750	1050	700	640	910	60	1200	600	1000	600
T12C, T12, T14, T16	1195	1675	750	1150	700	640	1010	60	1200	600	1000	600
T20, T26	1195	1695	880	1150	830	740	930	60	1400	800	1200	800
T32, T35	1295	1905	1000	1250	950	740	1140	60	1400	800	1200	800

The indicated cutouts apply only to the accessories AIR IN and OUTLET wall setup. The dimensions apply after all tasks have been completed and refer to finished floors.

- Statistics to be checked by customer If necessary wall must be reinforced with PUR- insulation elements. This must be considered for the cutouts
- Possible air short-circuit to be prevented by customer
- Necessary outside insulation to be installed by customer

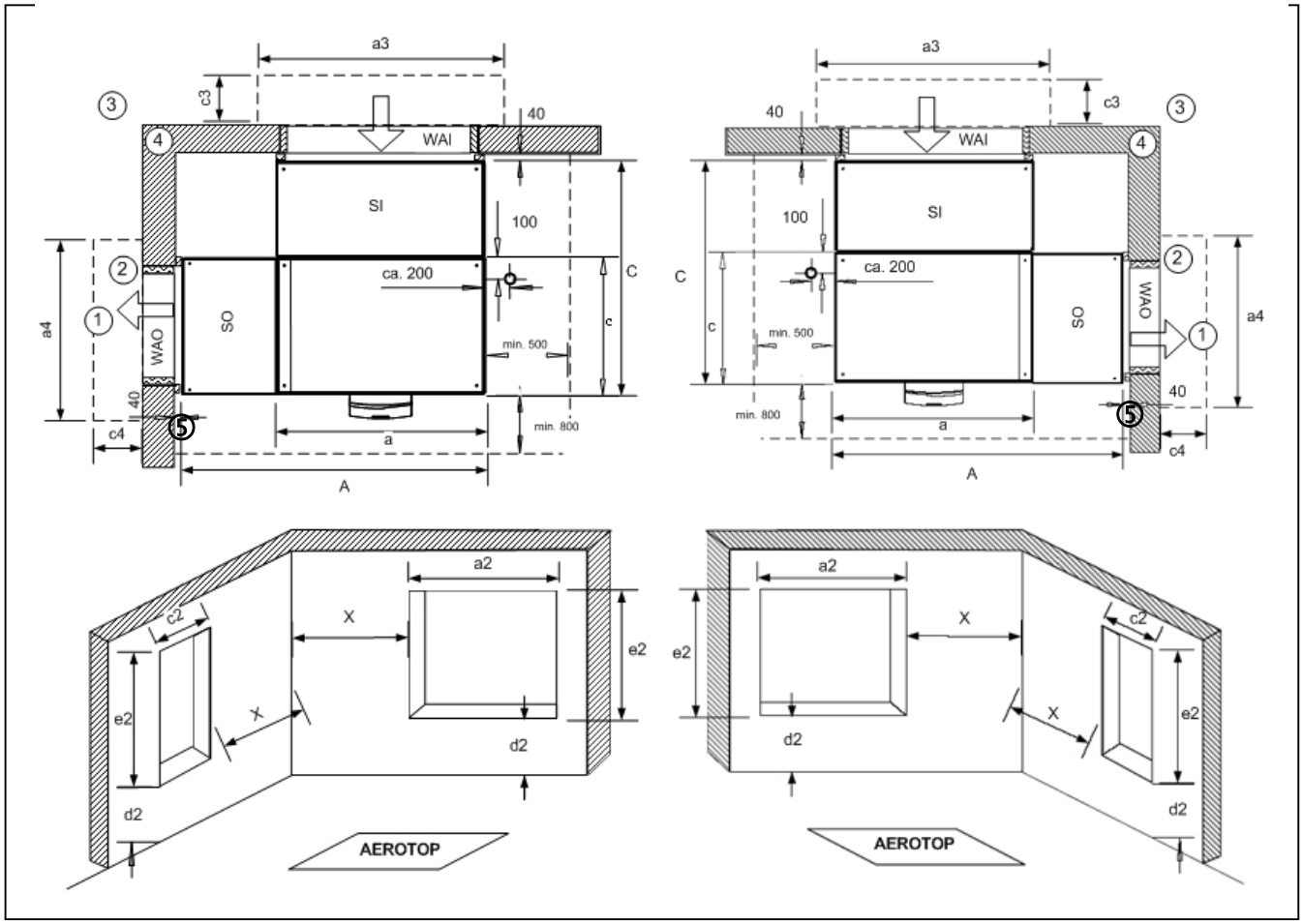
Indoor Installation

Corner Setup with Noise Dampers

AEROTOP T20-35 Corner Setup
The dimensions of the noise dampers must be considered in addition when placing AEROTOP T07 to T35 heat pumps into a corner.
The heat pump can be placed in the right or left corner. Air ducts are not needed.

Required Accessories:
- WAI wall setup, suction side
- WAO wall setup, output side
- SI nose damper
- SO noise damper

1) The compliance with acoustic limit values must be clarified by customer.
2) Necessary outside insulation by customer, minimal clearance of light well must not be gone below.
3) Possible air short-circuit to be prevented by customer.
4) Statistics to be checked by Customer
5) Distance from wall: min 20 mm, max 40 mm



AEROTOP T	Width	Width	Heigh	Dimensions With Noise Dampers		Dimensions Of Both Cutouts, Without Insulation					Minimal Dimensions, Light Well			
	a	b	c	A	C	a2	c2	d2	e2	x	a3	c3	a4	c4
T07C, T07	995	1525	650	1570	1225	950	600	640	860	635	1200	600	800	600
T10C, T10	1095	1575	750	1670	1325	1050	700	640	910	635	1200	600	1000	600
T12, T14, T16	1195	1575	750	1770	1325	1150	700	640	1010	635	1200	600	1000	600
T20, T26	1195	1675	880	1770	1455	1150	830	740	930	635	1400	800	1200	800
T32, T35	1295	1695	1000	1870	1575	1250	950	740	1140	635	1400	800	1200	800

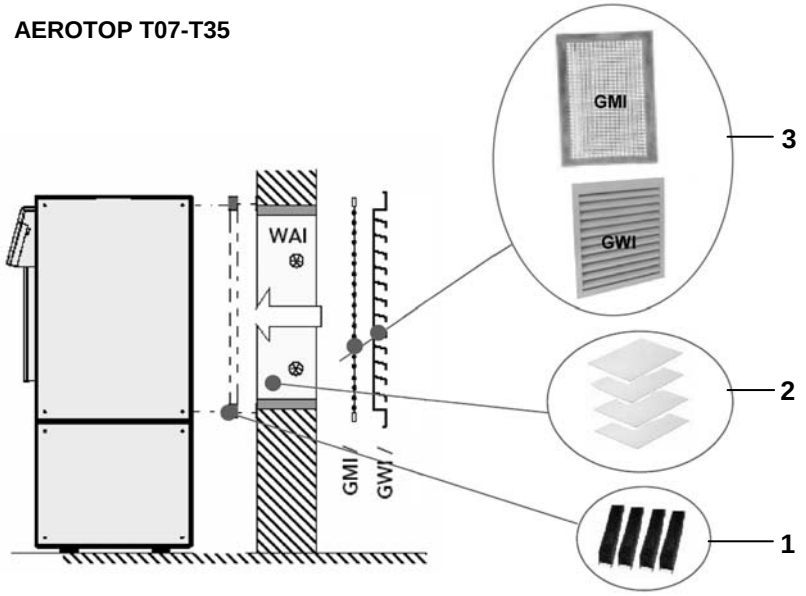
The indicated cutouts apply only to the accessories AIR IN and OUTLET wall setup. The dimensions apply after all tasks have been completed and refer to finished floors.

- Statistics to be checked by customer If necessary wall must be reinforced with PUR- insulation elements. This must be considered for the cutouts
- Possible air short-circuit to be prevented by customer
- Necessary outside insulation to be installed by customer

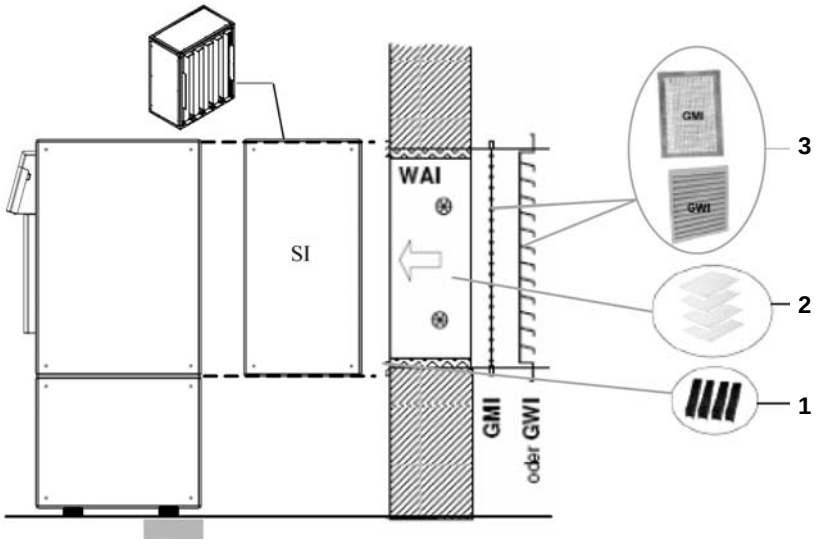
Indoor Installation

Corner Installation

AEROTOP T07-T35



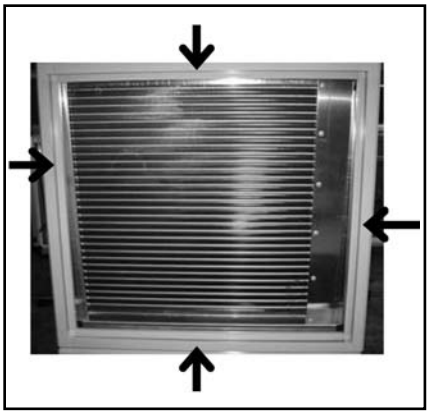
AEROTOP T20-T35 (optional for AEROTOP T16)



Installation Notes

- Insulate cutout with the self-adhesive insulation elements (2). The elements are cut to fit the size of the cutout opening. The width (400 mm) can be adjusted to match the wall thickness. Use a sharp knife to cut the elements to size. The installation of the cutout insulation boards is described in detail below.
- Attaching the compression belt (1) around the outer frame of the enclosure at air intake and outlet. **Important**: The belt must be attached all the way around the entire frame without any gaps.
- As indicated on pages 19 and 20, the heat pump must push against the wall up to a distance of 40 mm - with irregular walls the dis tance is reduced to 20 mm, how ever, the heat pump should in no way touch the wall. Make sure there are no uninsu-lated wall areas within the airflow path (thermal bridge). If this is the case, e.g. if the cutout was in-correctly done, this wall area must be insulated separately.
- Mount air intake cover grating (3) on exterior wall. Select either a mesh or protective grating.

Additional noise dampers SI and SO must be integrated for AEROTOP T20 to T35!



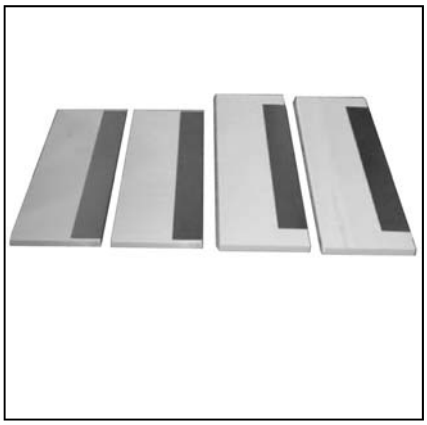
The defrosting sensor must be positioned in the airflow. Never place the sensor in between the plates of the evaporator.

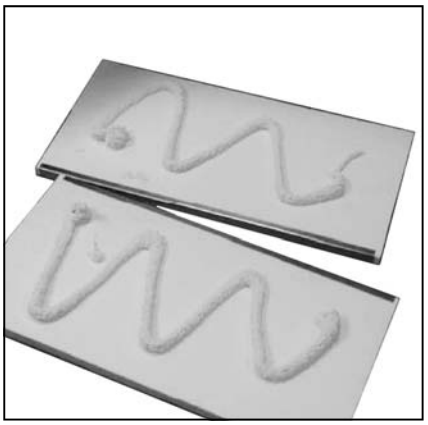
Indoor Installation

Cutout Insulation Installation

Cutout Insulation
The cutout insulation kit is needed to insulate the air intake and output cutouts. The kit includes the following:

- 4 star screws
- 4 insulating boards: Length and width dependent on heat pump size
- 1 bottle of assembly foam adhesive to attach insulating boards (only included in air intake kit)





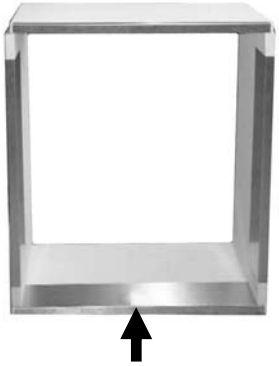
How to Install the Cutout Insulation

- Prepare insulating board
- Apply adhesive foam onto outside (wall side) of insulating board. The wall side is the side where the leg of the metal section is shorter.

Fig. A

Heat pump

Fig. B



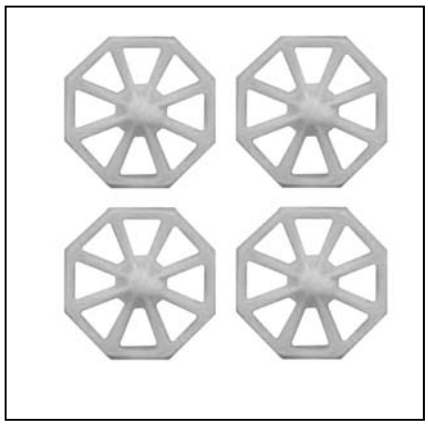
Protective grating

Installation in the Cutout
Take note of the correct placement of the cutout parts!
Press insulating boards against cutout walls as indicated in illustration.

Fig. (A): The front side remains free, i.e. no sheet metal in this side.

Fig. (B): Setup insulating boards. The sheet metal is attached to the rear side.

Cutout Insulation Installation

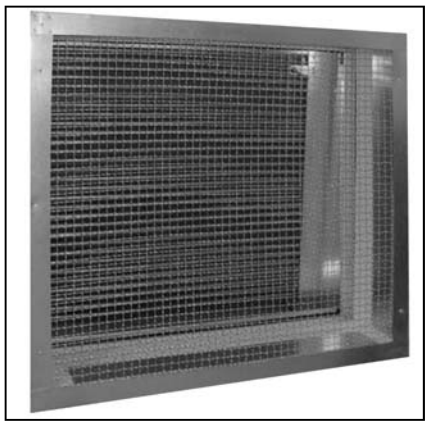


Fastening with Star Screws
Use the star screws to additionally fix the insulation boards in place.
One star screw per insulation element.

Steps

- Align in center of cutout insulation
- Drill hole diameter is 8.5 Ø.
- Wall opening is 4 cm.
- Screw in star screws.

Installation of Mesh or Protective Grating
The protective grating is installed at the rear at the sheet metal frame of the insulation using sheet metal screws.



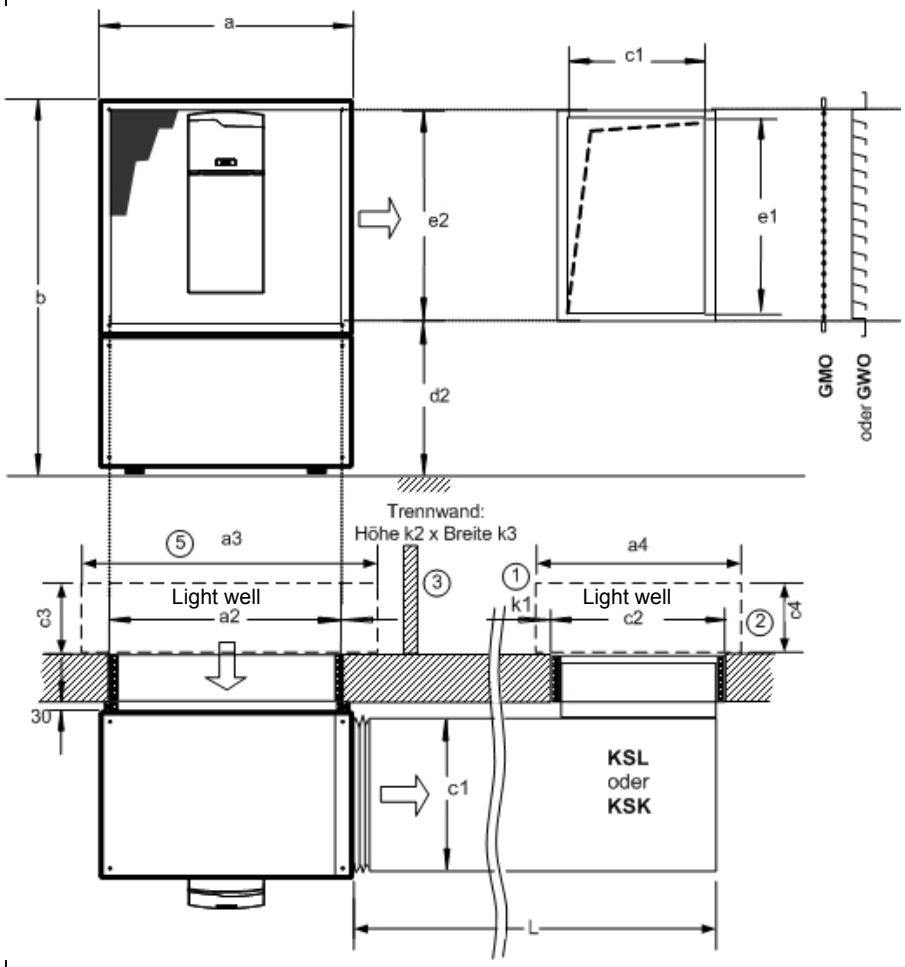
Finished Installation with Cutout Insulation and Mesh

Parallel Setup with Rigid Duct

Required Accessories:

- AIR IN wall setup kit
- AIR OUT parallel installation with rigid duct.

1) The compliance with acoustic limit values must be clarified by customer.
2) Necessary outside insulation by customer, minimal clearance of light well must not be gone below.
3) Possible air short-circuit to be prevented by customer; for the short duct (KSK) it is necessary to apply a partition wall.
5) Noise level of AIR OUT and AIR IN must be considered separately



- Attach flex sleeve (A) to inside frame of unit.
- Attach sealing tape to sheet metal duct on the side that is attached to the sleeve.
- Insert the sheet metal duct into the cutout. The sheet metal duct may not touch the wall in the cutout at any side. This can be achieved by placing a piece of insulation into the center of the cutout.
- Use the enclosed screws to affix sheet metal duct to the sleeve. Attach the section clips (included in installation kit) along all sides between sheet metal duct and sleeve. This ensures a tight connection.
- Use insulating foam in between the gaps of the cutout and the sheet metal duct from the outside of the cutout. An opening in the sheet metal duct makes it possible to insert the nozzle of the spray can. Completely fill the area between duct and cutout with foam.
- Mount air intake cover grating on exterior wall. Select either a mesh, protective grating, or a sound-dampening protective

Light well dimension				
	a3	**a4**	**c3**	**c4**
T07C, T07	1200	800	600	600
T10C, T10	1200	1000	600	600
T12C, T12, T14, T16	1200	1000	600	600

All dimensions refer to a finished floor and completed walls/masonry.

AEROTOP T	**Rigid Duct Dimension**		**Cutouts without Insulation**				**Distance between Cutouts**		**Partition Wall**	
	e1	c1	a2	c2	d2	e2	k1 without partition wall	k1 with partition wall	Height k2	Width k3
T07C, T07	800	520	950	600	640	860	1500	630	1500	1000
T10C, T10	850	620	1050	700	640	910	1500	630	1500	1000
T12C, T12, T14, T16	950	620	1150	700	640	1010	1800	630	1700	1200

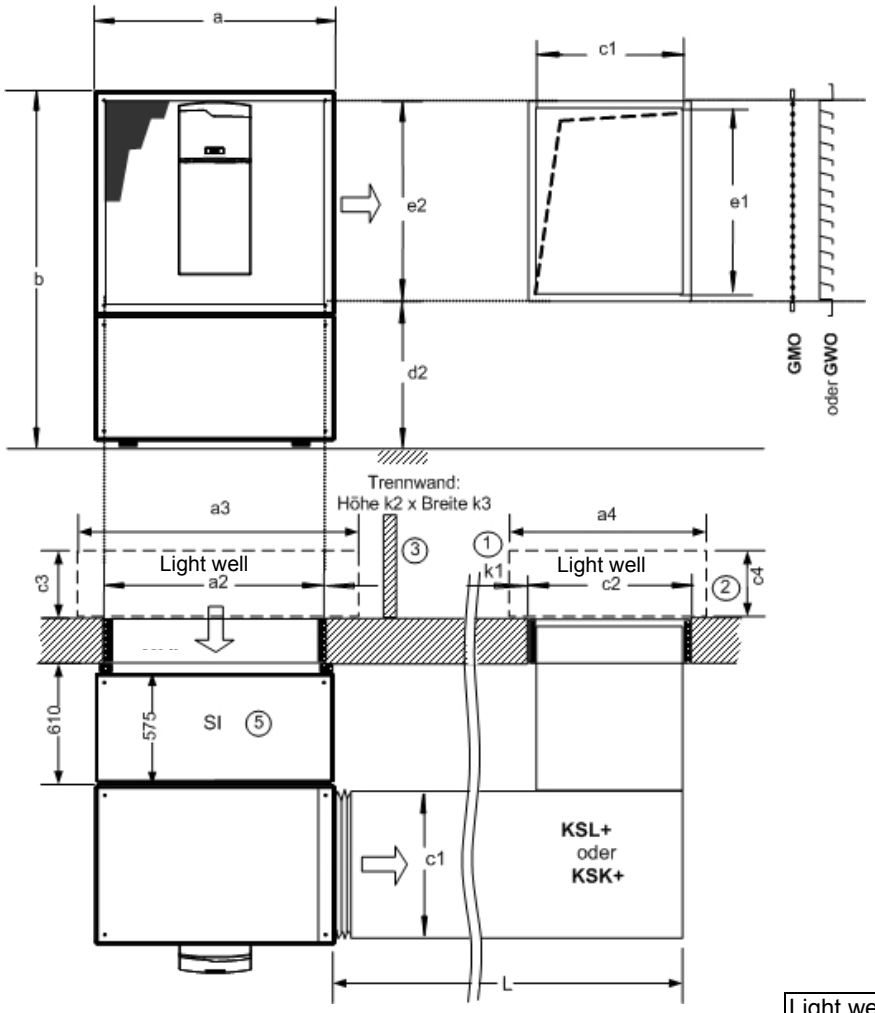
Indoor Installation

Parallel Setup with Rigid Duct (with Noise Damper)

Required Accessories:

- AIR IN wall setup kit
- AIR OUT parallel setup with rigid Duct
- SI Noise damper
- SO Noise Damper

1) The compliance with acoustic limit values must be clarified by customer.
2) Necessary outside insulation by customer, minimal clearance of light well must not be gone below.
3) Possible air short-circuit to be prevented by customer; for the short duct (KSK) it is necessary to apply a partition wall.
5) Noise level of AIR OUT and AIR IN must be considered separately



Light well dimension				
	a3	a4	c3	c4
T07C, T07	1200	800	600	600
T10C, T10	1200	1000	600	600
T12C, T12, T14, T16	1200	1000	600	600
T20, T26	1400	1200	800	800
T32, T35	1400	1200	800	800

AEROTOP T	Rigid Duct Dimension			Cutouts without Insulation				Distance between Cutouts		Partition Wall	
	e1	c1	f1	a2	c2	d2	e2	k1 without partition wall	k1 with partition wall	Height k2	Width k3
T07C, T07	800	520	575	950	600	640	860	1500	630	1500	1000
T10C, T10	850	620	575	1050	700	640	910	1500	630	1500	1000
T12C, T12, T14, T16	950	620	575	1150	700	640	1010	1800	630	1700	1200
T20, T26	870	750	575	1150	830	740	930	2000	630	1700	1200
T32, T35	1080	870	575	1250	950	740	1140	2200	630	1700	1500

General Duct Installation Information

The cause for condensate formation is due to the interplay between the room air temperature and the room's humidity level. These two components may result in the formation of condensate.

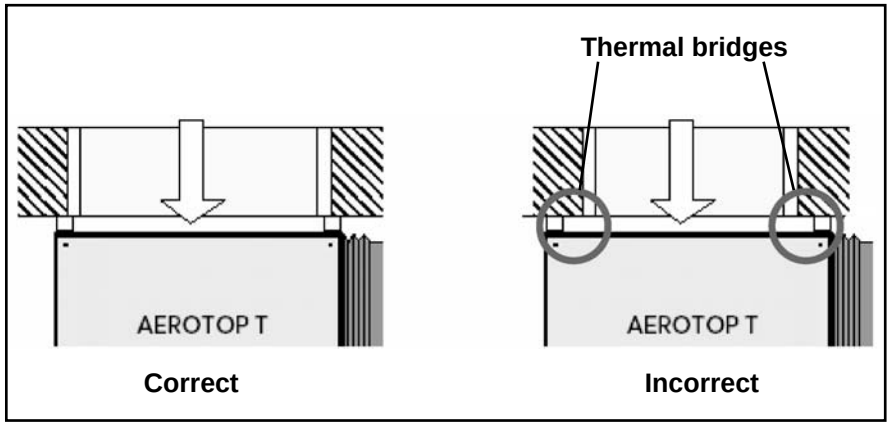
The following factors promote the formation of condensate:

- High building moisture during first year of operation
- Low room temperatures in installation location
- Some laundry rooms/bathrooms nearby or even integrated
- Little ventilation in installation location

Condensate always collects at the coldest spots in a room. In our case, this is the outgoing air side of the duct.

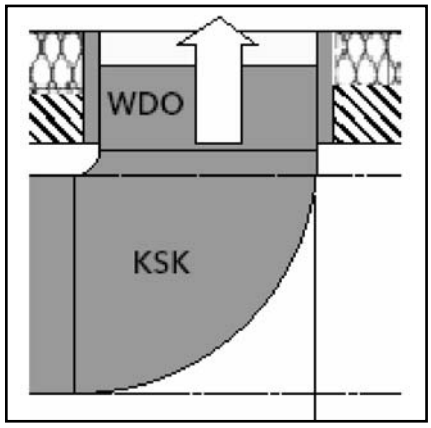
Measures to minimize the problem:

Avoid Thermal Bridges
No contact between masonry/walls and airflow or air duct incl. cover plate



Correctly Establishing the Opening for the Air Duct through the Wall
(Prevent cooling of wall.) The duct must be pulled through the exterior wall at least beyond the exterior insulation.

The wall opening (or gap between wall and air duct) must be filled or sealed with foam (e.g. PU foam) or insulation (Sagex/Armaflex).



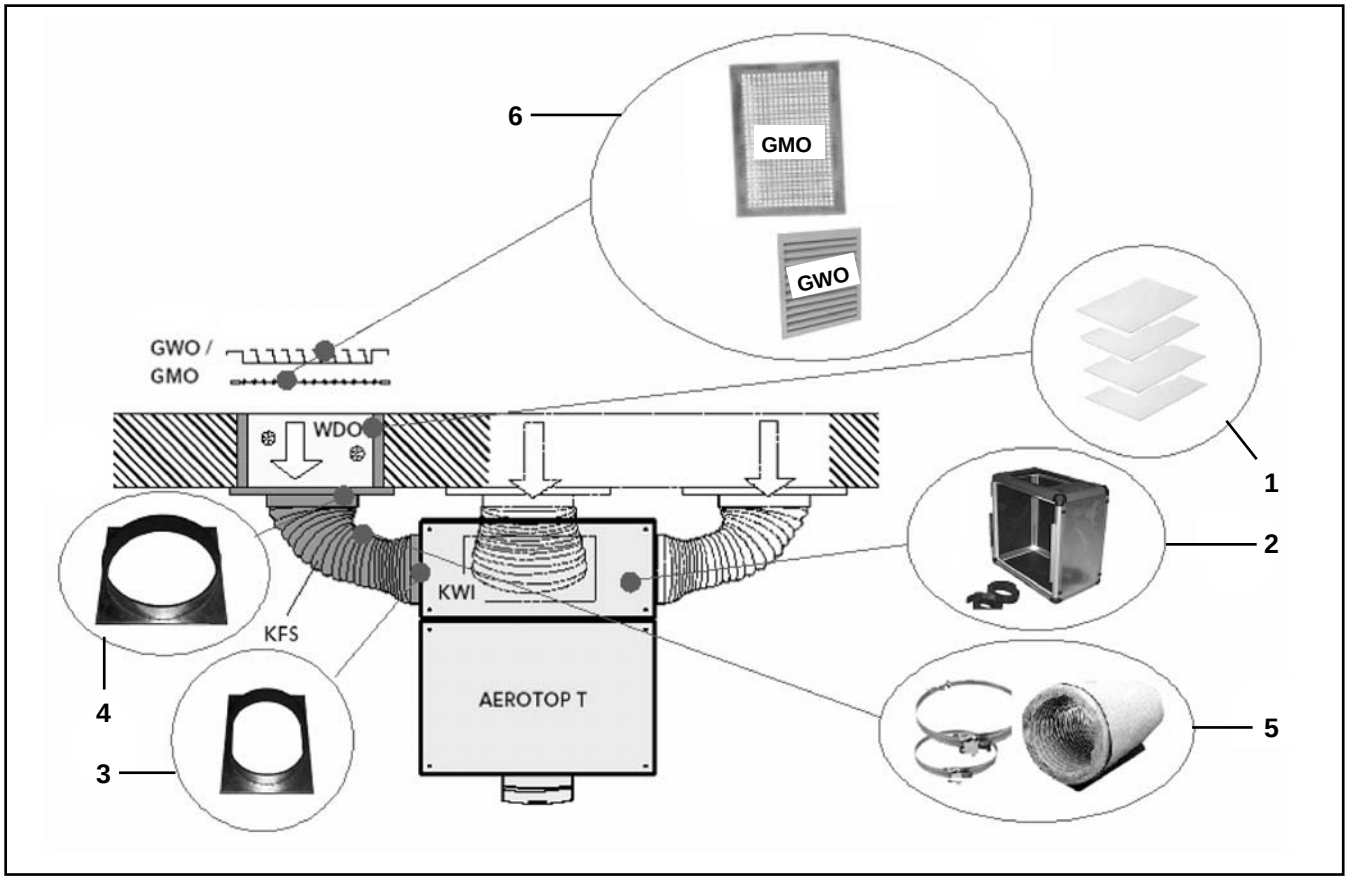
Air Duct Insulation
The air duct must be insulated throughout (min. thickness of 25 mm). The flexible canvas sleeve (prevents noise transference) must also be insulated.

Duct System
Sealing tape must be used between the individual connectors of the air ducts. (Included in installation kit.) Use section clips to seal the frame connections as well. (Included in installation kit.)

Join cutout insulation tightly in corners (for wall installation without ducts).

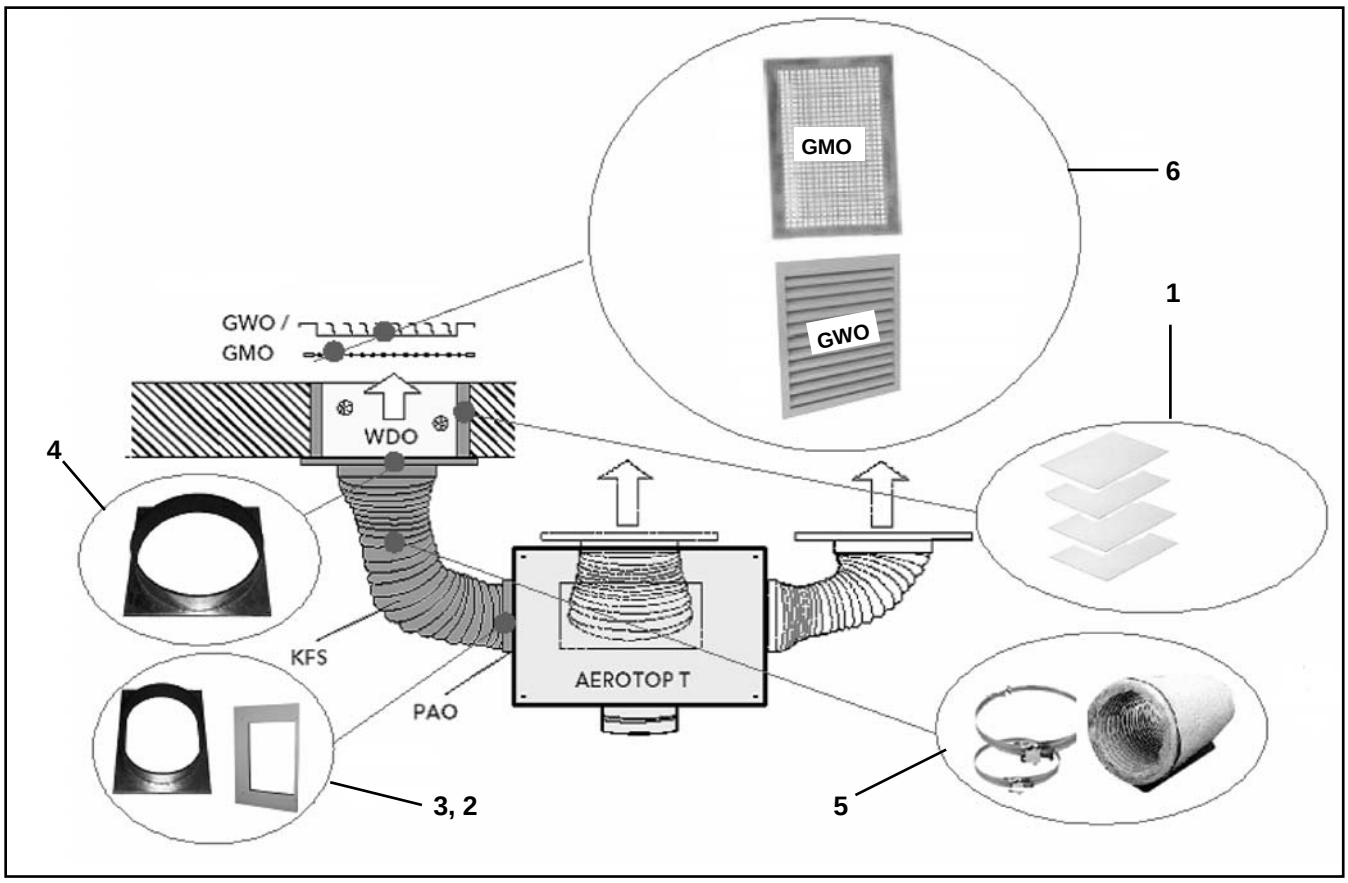
Indoor Installation

Flexible Intake



- Insulate cutout with the insulation elements (1).
- Attach intake box (2) to heat pump. To avoid thermal bridges, use the enclosed sealing tape to seal the space between bracket, intake box, and enclosure frame.
- Attach oval duct plate (3) to intake box.
- Attach round duct plate (4) to wall. The plate must be centered over the cutout.
- Attach duct (5) to duct plates. Adjust duct length if needed. Use a wire cutter to shorten the duct.
- Fasten duct to the connection plates with the enclosed cable clips (5). The duct must be fastened tightly to avoid leaks.
- Mount air intake cover grating (6) on exterior wall. Select either a mesh or protective grating.

Flexible Air Outlet

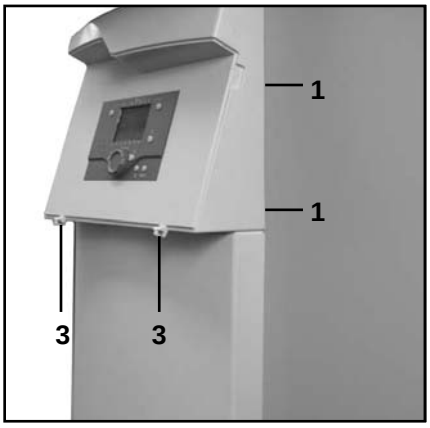


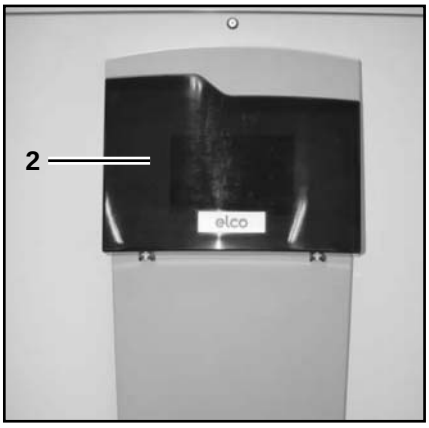
- Insulate cutout with the insulation elements (1).
- Attach air outlet panel (2) to heat pump.
- The can be done on the left, right, or the top of the heat pump as needed.
- Make sure the opening of the sheet metal is attached to the side of the fan so that the airflow is not blocked.

- Attach oval duct plate (3) to air outlet panel.
- Attach round duct plate (4) to wall. The plate must be centered over the cutout.
- Attach duct (5) to duct plates. Adjust duct length if needed. Use a wire cutter to shorten the duct.
- Fasten duct to the connection plates with the enclosed cable clips (5). The duct must be fastened tightly to avoid leaks
- Mount air intake cover grating (6) on exterior wall. Select either a mesh or protective grating.

Controller Unit Installation

The controller unit is to be snapped into the provided opening of the controller panel. Then connect the ready-to-use cable to the controller unit.





The controller panel with integrated control unit is pressed into the slot opening (1) at the heat pump enclosure. Finally, snap the Plexiglas cover (2) into the provided tabs (3) at the bottom side of the panel.

Special Conditions, Installation Location

Special Rules for Outdoor Installations
Please observe the general setup, installation, and connection instructions. Place the heat pump on a level and solid surface with the necessary bearing capacity. If not available, provide a cement base, acc. to the snow height, so that the feet of the outdoor unit cannot be covered with snow. The heat pump must be aligned with the adjustable feet.

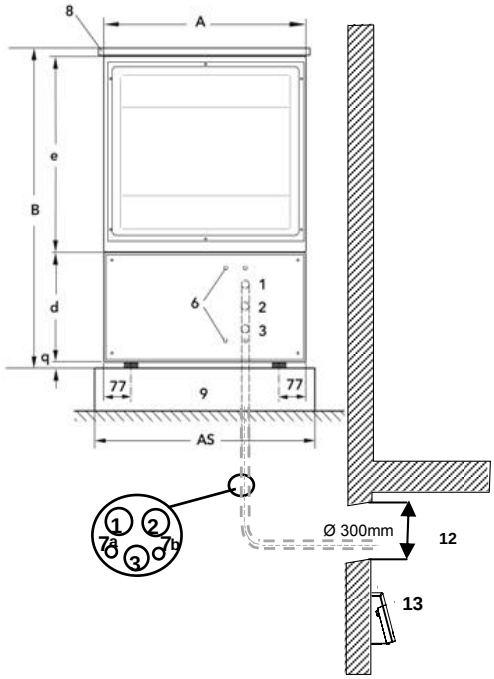
Heater flow and return must be as short as possible and well insulated to prevent heat losses. The condensate drain must be insulated and protected from frost and have a siphon with a min. height of 100 mm routed into a closed drain.
The drain line must not have any cross-section reductions and must be sufficiently suitable to ensure problem-free drainage.

The controller unit must be installed inside of the building (temperature range of +5°C to +40°C). The wall openings for heater flow and return as well as the electrical cables must be carried out according to the rules and regulations. Especially the flexible electrical cables as well as the low voltage (230 or 400V) and the extra-low voltage (sensor and controller cable) must be shielded from one another.

Selecting the Installation Site
Air intake and outlet must be kept clean, unobstructed, and free of snow, leaves, plants, machinery, etc. Comply with min. clearances as specified for air intake, outlet, misc. ducts, and maintenance (see previous page). Avoid an air short-circuit at all costs. Use both sides for the air outlet if strong winds, for example, may cause an air short-circuit. The air intake must be protected from aggressive or corrosive substances such as ammonia, chlorinated substances, etc.

The AEROTOP T heat pump is very quiet. However, since noise is perceived differently by different people, the heat pump should not be installed near windows, sleeping or living quarters (porch, edge of pool, etc.). The distance to neighboring houses should be sufficient as well. It is not advised to install the heat pump in recesses (possible echo or air short--circuit). Local rules and regulations apply.

Observe the checklist notes when selecting the installation site for the correct setup of an air-water heat pump.



1 Heater flow
Hydraulic and electrical connections are at the bottom side of the heat pump.
2 Heater return
3 Condensate drain Ø 25/31 mm
4 Air intake
5 Air outlet
6 Internal electrical panel
7 Hydraulic and electrical connections, electr. low voltage cable shielded from 380V and 230V
8 Adjustable, noise-dampened feet
9 Protective cover
10 Base or pedestal, recommended height of 200 mm, consider local snow levels.
12 Wall opening slanted towards inside with seal (in PE, inner diameter of 300 mm)
13 Controller unit for wall mounting (included in delivery)

Information about Cables in Conduits (Min. Ø 70 mm)

1 EC block	2-pin	Ø 5 mm	= Ø 57 mm (conduit min. 70 mm)
1 x malfunction	2-pin	Ø 5 mm	
1 x controller unit	3-pin	Ø 7 mm	
1 x room sensor	2-pin	Ø 5 mm	
7 x sensor	2-pin	Ø 35 mm	

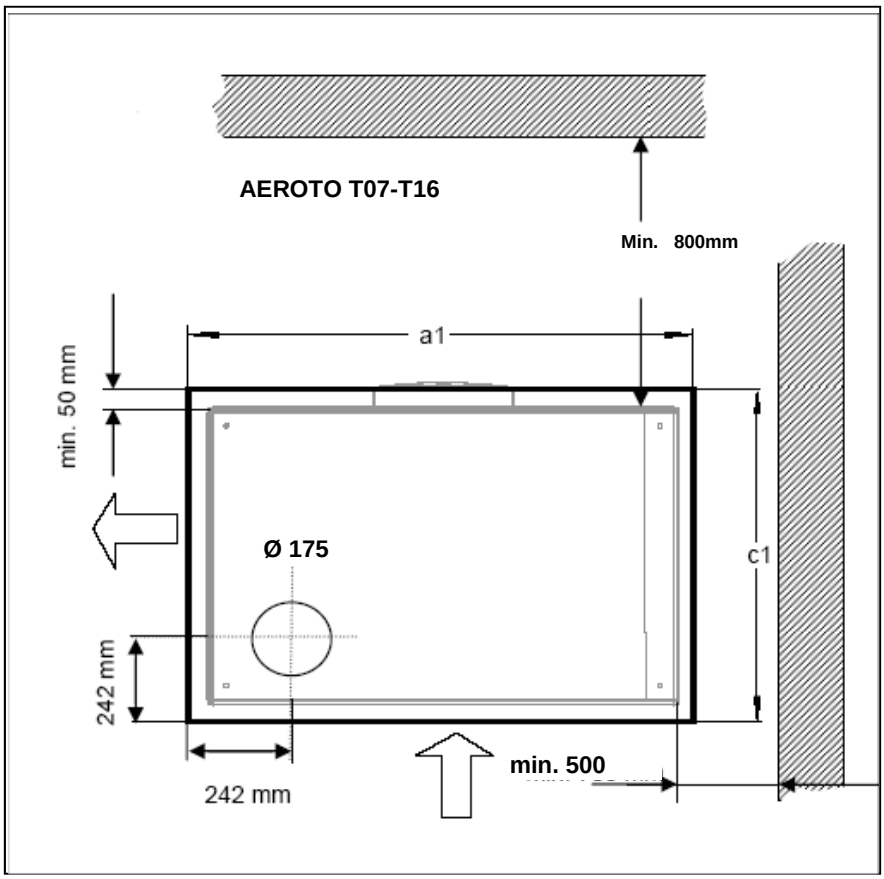
1 x electr. feed 3 x 400 V	3-pin	Ø 12 mm	= Ø 57 mm (conduit min. 70 mm)
1 x condenser pump	3-pin	Ø 7 mm	
1 x heating circuit pump	3-pin	Ø 7 mm	
1 x mixing valve	3-pin	Ø 7 mm	
1 x storage charge pump	3-pin	Ø 7 mm	
Heating Circuit 2			
1 x heating circuit pump	3-pin	Ø 7 mm	
1 x mixing valve	4-pin	Ø 10 mm	

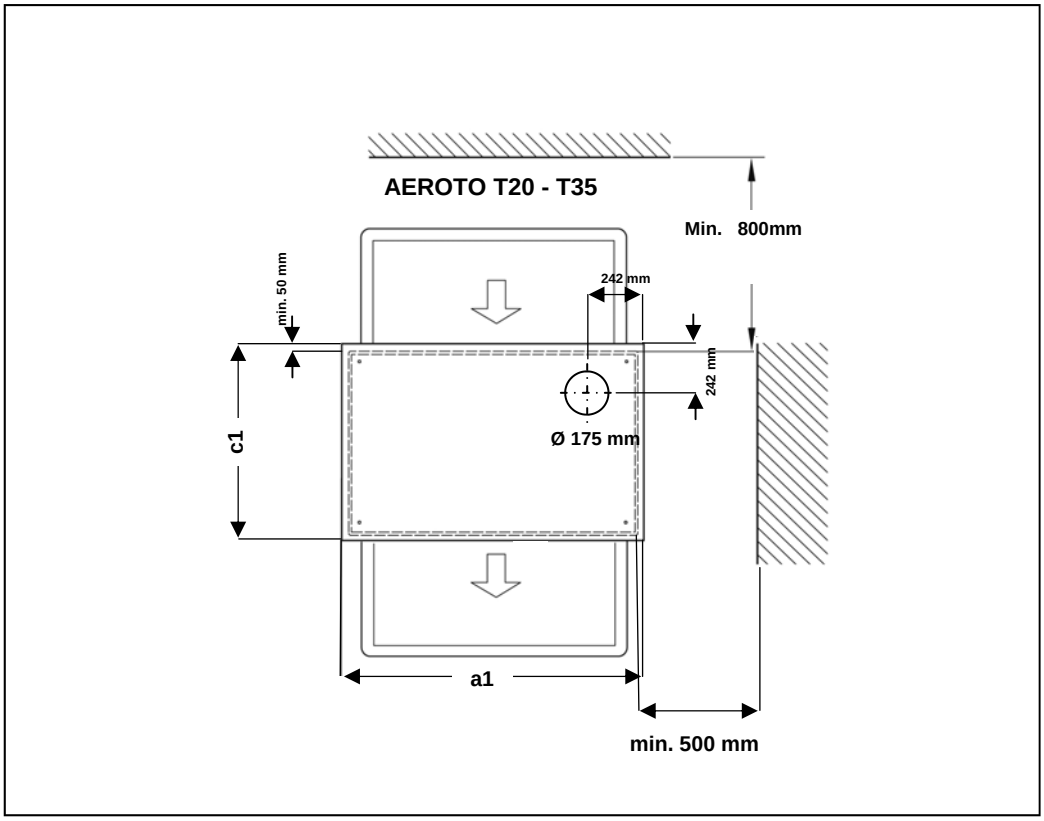
Outdoor Installation

Base/Pedestal Plan

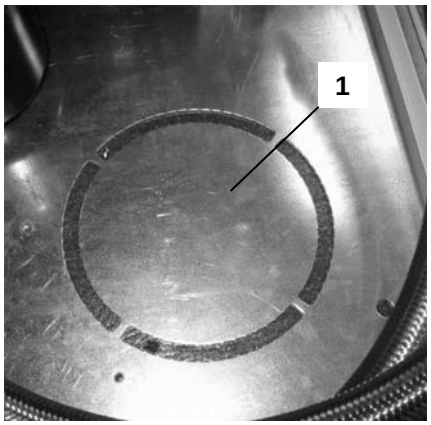
Cutouts in Base/Pedestal for AEROTOP T07-T35
The base or pedestal should project beyond each side of the heat pump for about 50 mm and be approx. 300 mm high (adjust to local snow conditions as needed). A conduit (NW 250) must be installed between building and heat pump for the installation lines (electrical, hydraulic, and condensate).

Setup Base/Pedestal			
AEROTOP T	**a1**	**c1**	**h1**
T07	1095	750	300
T10	1195	850	300
T12, T14, T16	1295	850	300
T20, T26	1295	980	300
T32, T35	1395	1100	300



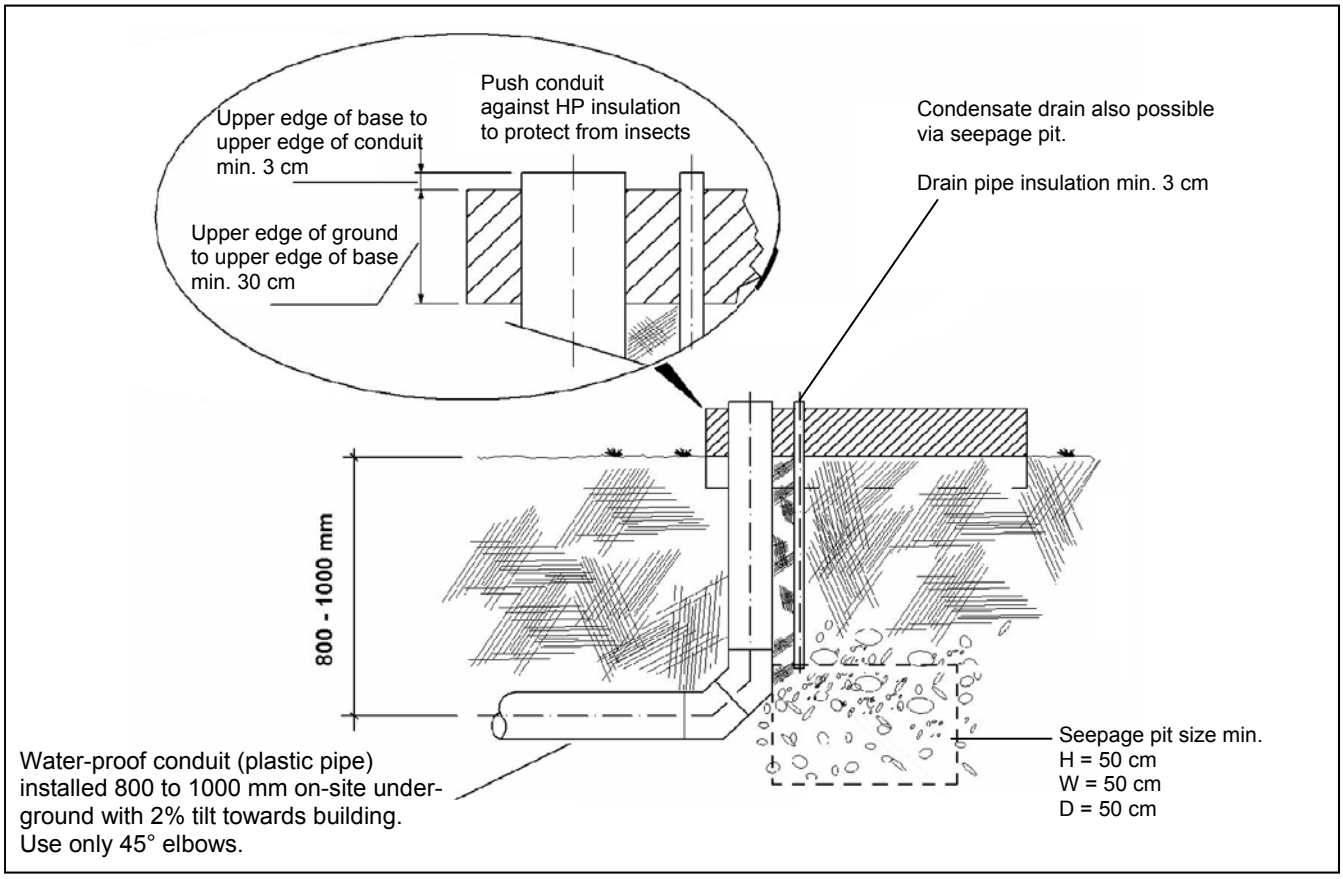


Duct and Cable Bushing



Prepunched Opening for Outdoor Installation of an Air-Water Heat Pump
A prepunched opening (1) for the lines routed from the rear of the enclosure into the ground is provided in the unit bottom behind the electrical panel. We recommend routing the lines this way for the heat pump installed outdoors. This involves pulling the heating lines, condensate connection, and the electrical cables through the opening.

Please take note of the base/pedestal plan with the required cutout.
The prepunched cover can be lifted with a screwdriver or detached with sheet metal nippers.

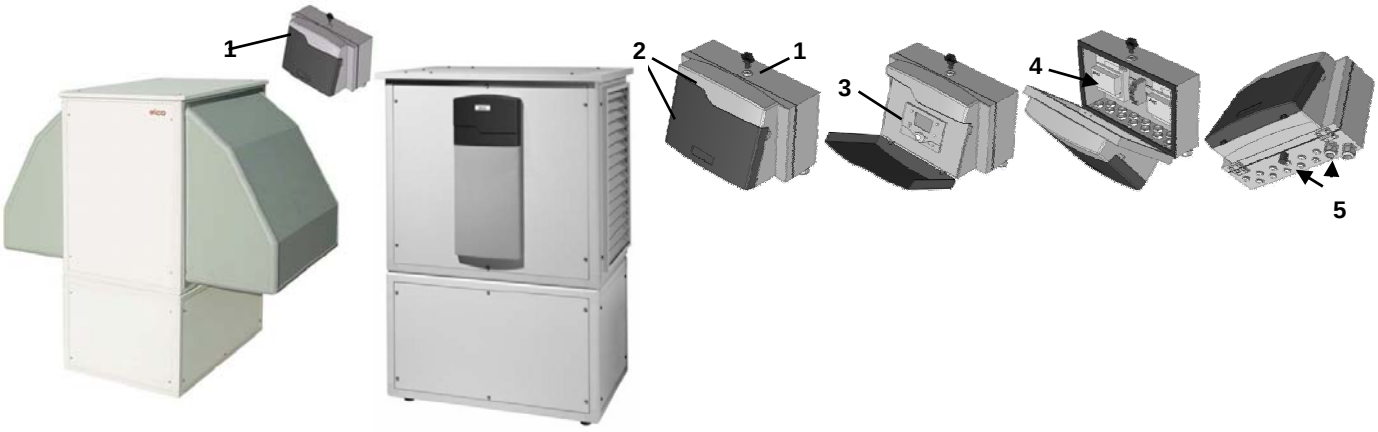

Push conduit against HP insulation to protect from insects
Upper edge of base to upper edge of conduit min. 3 cm
Upper edge of ground to upper edge of base min. 30 cm
Condensate drain also possible via seepage pit.
Drain pipe insulation min. 3 cm
800 - 1000 mm
Water-proof conduit (plastic pipe) installed 800 to 1000 mm on-site under-ground with 2% tilt towards building.
Use only 45° elbows.
Seepage pit size min.
H = 50 cm
W = 50 cm
D = 50 cm

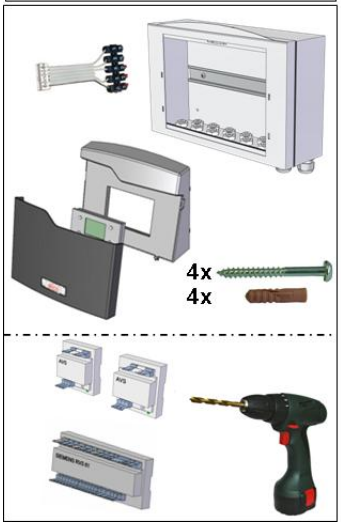
Installation

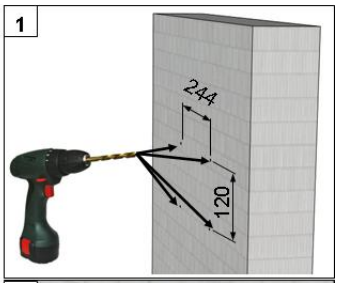
Controller Unit

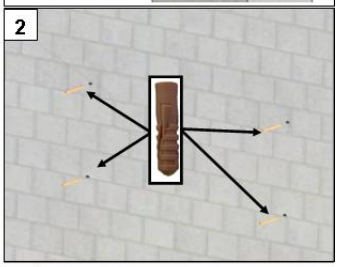
Control unit (3), switch panel (1), control unit bracket and Plexiglas unit cover (2) are supplied with Heat pump in the case of outdoor installation.

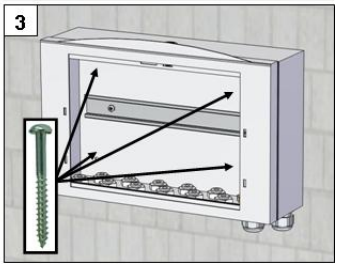
The control unit must be mounthed on a internal wall of the building

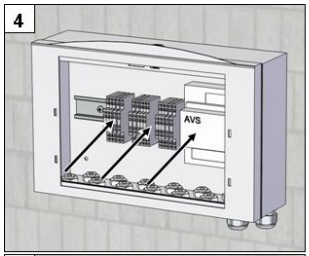


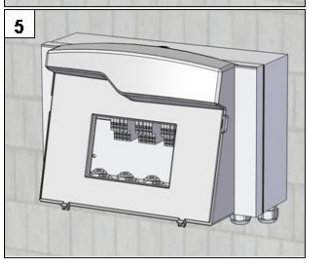


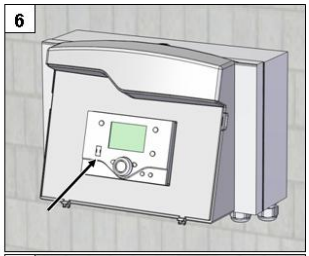


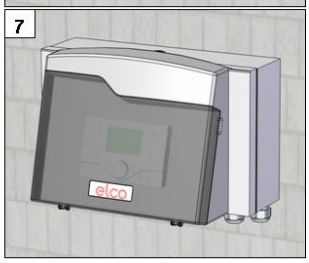


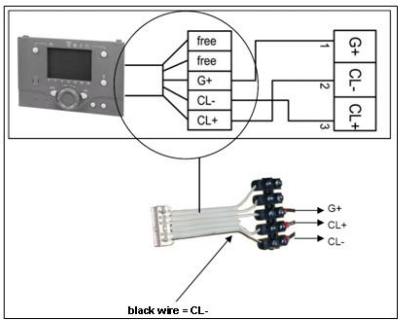












AEROTOPT LOGON B WP61 Troubleshooting/Fault Remedy

Problem	Cause	Remedy, Action
107: Hot gas compressor	Hot gas temperature (B81) too high A Not enough coolant B Compressor leak C Filter dryer dirty D Defective non-return valve E 4-way valve leaking F Injection valve not working	 A Top off coolant B Replace compressor C Check the difference in temperature between the filter drier inlet and outlet (ΔT max = 3) D Temperature at the compressor inlet and outlet is practically identical. Sounds could be heard at the non-return valve. E Check the temperature difference between the 4-way valve input inlet and outlet (ΔT max=5K) F Check injection valve, check position of capillary sensor **The refrigerant technician must be called in such cases.**
146: Sensor control element configure-tion	A The connected sensors are not suitable for the given function of the programmable inputs/outputs.	A Check sensor assignment A1 Check programmed function at Qx outputs A2 Check system configuration by means of control numbers
204: Fan overload	Affects E14 (EX4). A Parameter set incorrectly on LOGON B WP B Fan is defective	 A Check the setting of the parameter 5700 (should correspond with the diagram number of an air-water HP, >= 20) B Check the input voltage on terminal E14 (rest contact) B1 For load shedding check electric wiring. Check connections B2 Replace fan
222: High pressure during HP operation	Affects contact E10 at the LOGON B WP61. High-pressure problem during operation of heat pump. High-pressure pressure controller triggered in cooling circuit. No heat can be emitted. A In heating mode A1 Insufficient flow rate A2 Valve closed, non-return valves don't close A3 Heating or potable water circulation pump not running A4 Overflow valve missing or set incorrectly A5 Heating curve set too steep The module switches the particular unit to the safety mode when a malfunction or error occurs.	 A1 Check hot water flow (ΔT =5-10 K) A2 Open slide valve. Check non-return valves and 3-way switching valves A3 Check whether pump is working, restore function, replace pump if necessary A4 Install overflow valve, repeat setting procedure A5 Set heating curve lower B If A can be precluded, the amount of coolant could be too high. **The refrigerant technician must be called in this case.**
223: HP when starting HC	Affects contact E10 at the LOGON B WP61. High-pressure problem when the heat pump is started. A Water in system is too cold (below 10°C). For compact HP: B Upkeep valve does not open (is set to 30°C, DO NOT ADJUST).	 A Below 10 °C: Raise temperature in system with electric heating element. B Vent system at buffer storage.
224: HP when starting potable water heating	Affects contact E10 at the LOGON B WP. High pressure problem when starting potable water mode. A Potable water charging pump not running B Three-way valve opens too slowly or not at all C Water volume too low D Air in the system E Slide valve closed F Heat exchanger surface in storage too small or heat pump too large G Sensor positioned incorrectly/too low in storage	 A Unblock or replace pump B Check three-way valve, replace if needed. Extend flow time of condenser pump (Parameter 2802) C Check temperature difference between flow and return (ΔT =approx. 5-8 K) D Vent system E Open slide valve, check non-return valve F Heat exchange area (in m^2) = heating output HP at 20°C air and 50°C water x 0.3. E.g. 10 kW x 0.3= 3.0 m^2. HP output, consult technical data for corresponding source temperature. G Install sensor correctly. Check position of potable water sensor

AEROTOPT LOGON B WP61 Troubleshooting/Fault Remedy

Problem	Cause	Remedy, Action
225: Low pressure problem	Low pressure problem Affects contact E9 at the LOGON B WP61. Low pressure switch in the cooling circuit triggered. A Insufficient flow of air through evaporator A1 Ice formation A2 Evaporator dirty A3 Duct dirty/plugged A4 Protective grating dirty A5 Protective grating iced A6 Fan not running or not running enough A7 Pressure loss in ducts too great B Plugged filter C Injection valve defective, frozen or clogged D Incorrect amount of coolant E Leak in cooling circuit	 A1 Check thawing function (check sensor) A2 Clean evaporator A3 Clean duct dirty/remove obstacles from opening A4 Clean grating A5 Check size of mesh (use only one grating) A6 Check speed, adjust, check voltage A7 Check length of ducts If everything in A can be excluded: B Measure temperature difference between filter dryer input and output (ΔT max 3 K) C Check, set or replace injection valve D Empty and refill in accordance with type plate E Oil residue in the unit is another indication of a leak in the cooling circuit. **The refrigerant technician must be called in such cases.**
226: Winding protection compressor	Affects contact E11 at the LOGON B WP61. A Phase interruption (compressor gets hot) B Phase reverse (incorrect rotary field) C Phase loss D Phase asymmetry E Short circuit	 A Check all three phases (wait until the winding protection has cooled, can take several hours). B Check electrical connection. C Check whether oil sump heater is working. D Make sure the rotation is right. E Eliminate short circuit
247: Thawing problem	After the fourth thawing attempt, the evaporator sensor on the cooling circuit (B84) still has not reached the evaporator temperature (Para. 2954) set at the LOGON B WP61. A Sensor B91 positioned incorrectly B Sensor B84 defective/no longer in the required position C Not enough energy for thawing (water temperature in heating circuit too low) D Flow rate to the condenser too low	 A Position sensor properly, replace sensor if defective B Check sensor position. Check function (measure actual temperature in all injection pipes and compare with B84 value) C Switch on electric heating element until the minimum water temperature is reached. Close part of heating circuit. D Check pumps for functions, check return and switch valves
356: Flow monitor consumer	Flow monitor consumer Affects contact N24 at the LOGON B WP61.	
358: Soft starter	Softstarter problem Actions in relation to the LOGON B WP61's E25 (EX5) contact.	

AEROTOPT LOGON B WP61 Troubleshooting/Fault Remedy

Problem	Cause	Remedy, Action
12: PWW charge temp. HP too low	The controller stores the potable water temperature at which the charging with the heat pump was last interrupted when the heat pump reached the high pressure, hot gas or maximum switch-off temperature limit. If the value is lower than the setting “PWH charge temp HP minimum" (control line 7092), the service symbol will appear in the display and details of the service in the info line.	This parameter cannot be reset. If the minimum PWW charging temperature is exceeded again the next time potable water is charged, the service function will also be reversed. If it is still not reached, the service message will remain. 1. Check placement of the of the B3 sensor 2. Setpoint too high for PWW temp. 3. Charging type activated with B3 and B31, switch to B3 only 4. Temperature transmission to PWW sensor poor, improve with spring clamp 5. In the mother/child storage the PWW charge should occur at different levels via a three-way valve. 6. Heat exchange area of the storage is too small
Pre-heating for thawing	Following a pre-maturely interrupted thawing attempt (see “maximum thawing time”), the hot water is pre-heated during “disabled thawing” (message on the control unit “pre-heating for thawing”). If there is an electric heating element in the flow line or in the buffer/combination storage, it will be switched on for support. Afterwards, thawing mode will be switched to automatically.	Check the electric heating element connection Electric heating element should be configured in the programming menu
Heat pump disabled	Info about Parameter 8006 status HP 1. Disabled, outdoor temperature 2. Disabled, external External disablement on the part of the power supply company / of the electric utility company. Input voltage E6 has dropped. 3. Disabled, eco-mode	1. Outdoor temperature too low 2. Utility/power station blockage No problem, HP continues to run when the disablement is over. Check the functioning of the phase monitoring relay: The green LED on the phase monitoring relay must be illuminated when there is no disablement by the utility company/power station. 3. Summer mode

AEROTOP T Checklist

System/Unit: _____ Date: _____

Task	Check	Comment
Heat Pump		
Define hydraulic scheme, select and compare with system: - Check hydraulic components - Overflow valve installed (50% overflow), acc. to system scheme (systems with buffer storage and compact heat pump not required) - Check and adjust as needed consumer side (heater) pre-pressure expansion vessel and water pressure and safety valve - Bleeding the system - Shutoff and cap valves open? - With non-compact HP: Heating water temperature >10°C? Starting of the HP may be problematic, preheat buffer storage with e-rod! - Check pipe/tube dimensions PWH storage: - Storage capacity:___ liters - Heat exchanger surface: ____ m^2 (>= 0.3 m^2/kW) Buffer storage: - Correctly connected? - Tank capacity:____ liters (30 l/kW with sep. storage)	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	
Check electrical connections: (compare e-diagram with system) - Check cable entry points - Terminals: Check connections (tight enough?) - Check soft-starter (ampere and dip switches set correctly?) - Check rotary field and grounding conductor - Correct fuses? - Fuse protection force with all-pole disconnecting circuit breaker installed? - External e-rod fuse protection? - If electric company block exists, then disconnect via Logon B WP61 terminal X1 / L and 1 via contactor (not only with 3 phases) - Check all sensors (also those of HP) for proper fit and position (see electr. diagram)	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	
Initial Startup		
Logon B WP61 configuration: - Configure controller acc. to diagram/scheme - Save sensor parameters! (Parameter 6200 "Configuration") - Query input/output test / check sensor values (line 7700 and up) - Conduct relay test using input/ output test Important: Do not allow evaporator to start running! After test, reset parameter to "None" - Start heat pump (poss. change AT simulation parameter 7150 "Maintenance/Service") Important: Reset to IBN! - Fill out initial startup record	☐ ☐ ☐ ☐ ☐ ☐	
Heat Source		
- Check fan speed setting. - Duct system open: No shaft coverings, blocked openings, etc. - Duct/shaft dirty, dusty, plugged with leaves, etc. - Protective grating installed	☐ ☐ ☐ ☐	

AEROTOP T Checklist

Task	Check	Comment
- No short-circuit / air intake and outlet next to each other - No thermal and sound bridges Foamed insulation in cutout, no direct connection with wall - Noise damper: Noise damper must be installed for AEROTOP T20 and later. **With Outdoor HP Installation** - HP must be placed on base/pedestal - Air flow must be unobstructed - Ensure min. distances house / heat pump - Condensate drain into seepage pit Casing must project 1 cm into the enclosure to prevent condensate from flowing along line and into the building - Noise damper: Noise damper must be installed for AEROTOP T20 and later.	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	
Thermal Output / Other Tests and Checks during Operation		
- Check inspection glass in cooling circuit (green range / starts at approx. 40° flow, no bubbles visible) - Check noise, sound of unit (compressor turns over without excessive noise) - Check solid-borne noise transmission (flexible connection, sound-dampening pipe suspension, vibration transfer on floor) - Delta T heater side must be between following values/ above pump speed value: At low outside temp.(–5°C): 6-8K At med. outside temp. (+12°C): 9-12K At high outside temp. (+20°C): 10-13K At very high outside temp. (+30°C): 12-15K Different source temperatures results in variable temperature spreads!	☐ ☐ ☐ ☐	
Safety Tests		
- Test safety cutout: This involves shutting off the heater side flow. (Error 222 high pressure shutoff) - Test defrost until end of defrost (manual defrost press "reset key" for 5 sec) - Set overflow valve correctly (already set correctly for AEROTOP TC).	☐ ☐ ☐	
Other Comments:		

Sensor Characteristics NTC 1 k
Sensor Characteristics NTC 10 k

Sensor Characteristics 1K for Exterior Temperature Sensor B9

T [°C]	R[Ohm]	T [°C]	R[Ohm]	T [°C]	R[Ohm]
-30.0	13'034	0.0	2'857	30.0	827
-29.0	12'324	1.0	2'730	31.0	796
-28.0	11'657	2.0	2'610	32.0	767
-27.0	11'031	3.0	2'496	33.0	740
-26.0	10'442	4.0	2'387	34.0	713
-25.0	9'889	5.0	2'284	35.0	687
-24.0	9'369	6.0	2'186	36.0	663
-23.0	8'880	7.0	2'093	37.0	640
-22.0	8'420	8.0	2'004	38.0	617
-21.0	7'986	9.0	1'920	39.0	595
-20.0	7'578	10.0	1'840	40.0	575
-19.0	7'193	11.0	1'763	41.0	555
-18.0	6'831	12.0	1'690	42.0	536
-17.0	6'489	13.0	1'621	43.0	517
-16.0	6'166	14.0	1'555	44.0	500
-15.0	5'861	15.0	1'492	45.0	483
-14.0	5'574	16.0	1'433	46.0	466
-13.0	5'303	17.0	1'375	47.0	451
-12.0	5'046	18.0	1'320	48.0	436
-11.0	4'804	19.0	1'268	49.0	421
-10.0	4'574	20.0	1'218	50.0	407
-9.0	4'358	21.0	1'170		
-8.0	4'152	22.0	1'125		
-7.0	3'958	23.0	1'081		
-6.0	3'774	24.0	1'040		
-5.0	3'600	25.0	1'000		
-4.0	3'435	26.0	962		
-3.0	3'279	27.0	926		
-2.0	3'131	28.0	892		
-1.0	2'990	29.0	859		

Sensor Characteristics NTC 10 k for Sensors B1, B3, B4, B21, B41, B71, B81, B91, and B92

T [°C]	R[Ohm]	T [°C]	R[Ohm]	T [°C]	R[Ohm]
-30.0	175203	50.0	3605	130.0	298
-25.0	129289	55.0	2989	135.0	262
-20.0	96360	60.0	2490	140.0	232
-15.0	72502	65.0	2084	145.0	206
-10.0	55047	70.0	1753	150.0	183
-5.0	42158	75.0	1481	155.0	163
0.0	32555	80.0	1256	160.0	145
5.0	25339	85.0	1070	165.0	130
10.0	19873	90.0	915	170.0	117
15.0	15699	95.0	786	175.0	105
20.0	12488	100.0	677	180.0	95
25.0	10000	105.0	586	185.0	85
30.0	8059	110.0	508	190.0	77
35.0	6535	115.0	443	195.0	70
40.0	5330	120.0	387	200.0	64
45.0	4372	125.0	339		

AEROTOP T T07(C)-T16

Model AEROTOP T		T07(C)	T10(C)	T12(C)	T14	T16
Heating Cycle		Applies to all models at A2W35				
Heating capacity/thermal rating	kW	6.4	9.1	11.8	13.7	14.8
Power consumption	kW	2.0	2.8	3.4	3.9	4.1
COP	-	3.3	3.3	3.5	3.5	3.6
Compressor		Scroll hermetic				
Max. current consumption	A	6.3	10	11	13	13.5
Starting current with soft starter	A	15.75	25	27.5	32.5	33.75
Current intensity with blocked rotor (LRA)	A	40	50	66	74	74
Electrical Connection	V-f-Hz	400-3-50				
HP fuse	A/T	16	16	16	20	20
HP fuse with electr. heater element	A/T	20	20	20	25	25
Water Heat Exchanger		Material: chromium steel AISI 304 1.4301				
Hydraulic Connections	R"	1"	1"	1"	1"	1"
Water volume incl. connection hoses AEROTOP TC	l	53	53	53	-	-
Water volume incl. connection hoses AEROTOP T	l	2.6	3	3.1	3.4	3.4
Rated volume flow, heating nom/min [1]	l/h	1500/568	2100/835	2700/999	3070/1171	3100/1300
Pressure loss, heating						
- AEROTOP TC (nom/min)	kPa	8.4/2.1	16.4/4.1	22.8/5.7		
- AEROTOP T (nom/min)	kPa	28.3/4.4	32.9/4.1	33/4.5	36.5/4.6	35.5/5.5
Residual pressure AEROTOP TC [2]	kPa	51.4	57.9	55.4		
Max working pressure	bar	3	3	3	3	3
Air Heat Exchanger/Fan						
Volume flow	m3/h	2'500	3'300	5'300	6'300	6'800
Available pressure [3]	Pa	150	92	146	112	82
Power consumption, fan	kW	0.035	0.100	0.100	0.170	0.210
Max current consumption, fan	A	1.6	1.6	2.1	2.1	2.1
Refrigerant	-	R407C				
AEROTOP TC refrigerant charge	kg	1.9	2.95	3.7	-	-
AEROTOP T refrigerant charge	kg	2.5	3.1	3.7	4.1	4.1
Cooling circuit oil	-	Ester oil				
Oil amount	l	1.1	1.36	1.85	1.65	1.89
Total weight, heat pump Aerotop TC		239	274	299	-	-
Total weight, heat pump Aerotop T	kg	204	246	272	276	279
Sound Level [4] Outdoor installation						
Standard configuration [5]	dB(A)	62.0	65.0	61.0	66.0	70.0
Sound Level [4] Indoor setup						
Sound power level On suction	dB(A)	53.0	56.0	54.0	59.0	61.0
On exhaust	dB(A)	48.0	53.0	50.0	53.0	55.0
Inside	dB(A)	50.0	54.0	55.0	60.0	60.0

1) Min: Δt max= 10 K, with PHW-preparation Δtmax = 5 K. (V' [l/h]= Qh[kW]/(4.18*Δt[K]*ρ[kg/l])*3600)
2) Residual pumping pressure is stated for maximum pumping stage
3) At maximum fan rotational speed.
4) Measuring according to DIN ISO 9614-2. Sound power level is a property of the source of noise and therefore dependent on the distance; it describes the totality of the sound power of the corresponding source radiating in all directions. Information to determine the noise level see planning documents.
5) With Rain Guard

Technical Data

AEROTOP T20-T35

Heat pump type AEROTOP T			**T20**	**T26**	**T32**	**T35**
Heating operation			For A2/W35			
Heating Capacity	Qh	kW	18.9	24.4	30.2	33.4
Power input	Pel	kW	5.8	7.4	8.8	9.2
Performance number EN14511	COP	-	3.2	3.3	3.4	3.6
Condenser			Scroll hermetically			
Maximum current consumption	Imax	A	16	22	27	25
Start-up current with smooth starter	VSA	A	40	55	67.5	62.5
Current intensity with blocked rotor	LRA	A	99	123	127	167
Current connection		V-f-Hz	400-3-50			
Fuse WP		A/T	32	40	40	40
Condenser, heater side			Material: Chrome steel AISI 316, 1.4401			
Hydraulic connections	IG	Zoll	1¼"	1¼"	1¼"	1¼"
Water content incl. connection hoses AEROTOP T		l	4.9	4.9	5.7	5.7
Volume stream heating operation nom/min [1]		l/h	3700/1714	5850/2259	6280/2803	7300/2964
Pressure loss heating operation		kPa	14.9/4.5	32.9/7.7	36.1/6.4	46.7/7
Max working pressure	p	bar	10	10	10	10
Evaporator/fan						
Volume stream		m^3/h	7'300	8'200	10000	11000
Available pressure [2]		Pa	155	75	255	180
Power consumption fan	P	kW	0.530	0.700	0.500	0.650
Maximum current consumption fan	Imax.	A	1.8	1.8	2.8	2.8
Coolant		-	R407C			
Coolant filling AEROTOP T		kg	6	7.4	9.2	9.2
Coolant circuit oil		-	Ester oil			
Oil quantity		l	4.1	4.1	4.1	4.1
Weight heat pump						
AEROTOP T		kg	375	392	460	468
Sound Level [3] Outdoor installation						
Standard configuration with Hoods [4]	Lwa	dB(A)	66.0	70.0	67.0	70.0
Sound Level [3] Indoor setup						
Sound power level On suction	Lwa	dB(A)	65.0	67.0	66.0	70.0
On exhaust	Lwa	dB(A)	59.0	61.0	64.0	67.0
Inside	Lwa	dB(A)	59.0	59.0	63.0	68.0

1) Min: Δt max= 10 K, with PHW-preparation Δtmax = 5 K. (V' [l/h]= Qh[kW]/(4.18*Δt[K]*ρ[kg/l])*3600).
2) At maximum fan rotational speed.
3) Measuring according to DIN ISO 9614-2. Sound power level is a property of the source of noise and therefore dependent on the distance; it describes the totality of the sound power of the corresponding source radiating in all directions. Information to determine the noise level see planning documents.
4) With HI and HO Hoods

AEROTOP T07(C)X-T10(C)X

Modell AEROTOP T…X		T07X (C)	T10X (C)
Heating Cycle		Applies to all models at A2W35	
Heating capacity/thermal rating	kW	6.4	9.1
Power consumption	kW	2	2.8
COP	-	3.3	3.3
Compressor		Hermetic scroll	
Max. current consumption	A	17.3	23.5
Starting current with soft starter	A	40	40
Current intensity with blocked rotor (LRA)	A	76	114
Electrical Connection	V-f-Hz	230-1-50	
Fuse	A/T	20	20
Fuse with electr. heater element: 2 kW	A/T	32	40
Fuse with electr. heater element: 4 kW	A/T	40	50
Fuse with electr. heater element: 6 kW	A/T	50	63
Water Heat Exchanger		Material: chromium steel AISI 304 1.4301	
Hydraulic Connections	R"	1”	1”
Water volume incl. connection hoses AEROTOP TC		53	53
Water volume incl. connection hoses AEROTOP T	l	2.6	3
Rated volume flow, heating (nom/min.)[1)]	l/h	1500/568	2100/835
Pressure loss, heating			
- AEROTOP TC (nom/min.)	kPa	8.4/2.1	16.4/4.1
- AEROTOP T (nom/min.)	kPa	28.3/4.4	32.9/4.1
Residual pressure AEROTOP TC[2)]	kPa	51.4	57.9
Max working pressure	bar	3	3
Air Heat Exchanger/Fan			
Volume flow	m3/h	2'500	3‘300
Available pressure [3)]	Pa	150	92
Power consumption, fan	kW	0.035	0.100
Rated current consumption, fan	A	1.6	1.6
Refrigerant	-	R407C	
Refrigerant charge AEROTOP TCX	kg	1.9	2.95
Refrigerant charge AEROTOP TX		2.5	3.1
Cooling circuit oil	-	Ester oil	
Oil amount	l	1.1	1.36
Total weight, heat pump			
AEROTOP TC	kg	242	278
AEROTOP T		207	250
Sound Level [4)] Outdoor installation			
Standard configuration [5)]	dB(A)	62.0	65.0
Sound Level [4)] Indoor setup			
Sound power level On suction	dB(A)	53.0	56.0
On exhaust		48.0	53.0
Inside		50.0	54.0

1) Min: Δt max= 10 K, with PHW-preparation Δtmax = 5 K. (V' [l/h]= Qh[kW]/(4.18*Δt[K]*ρ[kg/l])*3600)
2) Residual pumping pressure is stated for maximum pumping stage
3) At maximum fan rotational speed.
4) Measuring according to DIN ISO 9614-2. Sound power level is a property of the source of noise and therefore dependent on the distance; it describes the totality of the sound power of the corresponding source radiating in all directions. Information to determine the noise level see planning documents.
5) With Rain Guard

Technical Data

AEROTOP T07R-T16R

Heat pump type AEROTOP TR			T07R	T10R	T12R	T14R	T16R
Heating operation			For A2/W35				
Heating Capacity	Qh	KW	6.4	9.1	11.8	13.7	14.8
Power input	Pel	KW	2.0	2.8	3.4	3.9	4.1
Performance number EN14511	COP	-	3.3	3.3	3.5	3.5	3.6
Cooling operation			for A35/W18				
Cooling Capacity	Qc	KW	6.7	9.7	11.9	15.3	15.6
Power input	Pel	KW	2.6	3.7	4.7	5.8	6.1
Condenser			Scroll hermetically				
Maximum current consumption	Imax	A	6.3	10	11	13	13.5
Start-up current with smooth starter	VSA	A	15.75	25	27.5	32.5	33.75
Current intensity with blocked rotor	LRA	A	40	50	66	74	74
Current connection		V-f-Hz	400-3-50				
Fuse WP		A/T	16	16	16	20	20
Fuse WP with electrical insert		A/T	20	20	20	25	25
Condenser, heater side			Material: Chrome steel AISI 304, 1.4301				
Hydraulic connections	IG	R"	1"	1"	1"	1"	1"
Water content incl. connection hoses AEROTOP T		l	2.6	3	3.1	3.4	3.4
Volume stream heating operation nom/min [1]		l/h	1500/568	2100/835	2700/999	3070/1171	3100/1300
Pressure loss heating operation nom/min		kPa	28.3/4.4	32.9/4.1	33/4.5	36.5/4.6	35.5/5.5
Minimum volume stream cooling operation (Δt= 5 K)		l/h	1'150	1'670	2'050	3000	3050
Pressure loss cooling operation		kPa	17.4	16.1	18.3	19.4	20.4
Max working pressure	p	baar	3	3	3	3	3
Evaporator/fan							
Volume stream		m^3/h	2'500	3'300	5'300	6'300	6'800
Available pressure [2]		Pa	150	92	146	112	82
Power consumption fan	P	kW	0.035	0.100	0.100	0.170	0.210
Maximum current consumption fan	Imax	A	1.6	1.6	2.1	2.1	2.1
Coolant		-	R407C				
Coolant filling AEROTOP TR		kg	5	7.5	9	9	9
Coolant circuit oil		-	Ester Oil				
Oil quantity		l	1.1	1.36	1.85	1.65	1.89
Weight heat pump		kg	204	246	272	276	279
Sound Level [3] Outdoor installation							
Standard configuration [4]	Lwa	dB(A)	62.0	65.0	61.0	66.0	70.0
Sound Level [3] Indoor setup							
Sound power level On suction	Lwa	dB(A)	53.0	56.0	54.0	59.0	61.0
On exhaust	Lwa	dB(A)	48.0	53.0	50.0	53.0	55.0
Inside	Lwa	dB(A)	50.0	54.0	55.0	60.0	60.0

1) Min: Δt max= 10 K, with PHW-preparation Δtmax = 5 K. (V' [l/h]= Qh[kW]/(4.18*Δt[K]*ρ[kg/l])*3600)
2) At maximum fan rotational speed.
3) Measuring according to DIN ISO 9614-2. Sound power level is a property of the source of noise and therefore dependent on the distance; it describes the totality of the sound power of the corresponding source radiating in all directions. Information to determine the noise level see planning documents.
4) With Rain Guard

AEROTOP T20R-T35R

Heat pump type AEROTOP TR			T20R	T26R	T32R	T35R
Heating operation			For A2/W35			
Heating Capacity	Qh	KW	18.9	24.4	30.2	34.4
Power input	Pel	KW	5.8	7.4	8.8	9.2
Performance number EN14511	COP	-	3.2	3.3	3.4	3.6
Cooling operation			for A35/W18			
Cooling Capacity	Qc	KW	20.2	30.6	34.7	36.6
Power input	Pel	KW	8.5	11.8	14	14.3
Condenser			Scroll hermetically			
Maximum current consumption	Imax	A	16	22	27	25
Start-up current with smooth starter	VSA	A	40	55	67.5	62.5
Current intensity with blocked rotor	LRA	A	99	123	127	167
Current connection		V-f-Hz	400-3-50			
Fuse WP		A/T	32	40	40	40
Condenser, heater side			Material: Chrome steel AISI 304, 1.4301			
Hydraulic connections	IG	R"	1¼"	1¼"	1¼"	1¼"
Water content incl. connection hoses AEROTOP T		l	4.9	4.9	5.7	5.7
Volume stream heating operation nom/min [1]		l/h	3700/1714	5850/2259	6280/2803	7300/2964
Pressure loss heating operation		kPa	14.9/4.5	32.9/7.7	36.1/6.4	46.7/7
Minimum volume stream cooling operation (Δt= 5 K)		l/h	3470	5260	5970	6300
Pressure loss cooling operation		kPa	14	20.6	14.8	21.8
Max working pressure	p	baar	10	10	10	10
Evaporator/fan						
Volume stream		m^3/h	7'300	8'200	10000	11000
Available pressure [2]		Pa	149	198	225	313
Power consumption fan	P	kW	0.530	0.700	0.500	0.650
Maximum current consumption fan	Imax	A	1.8	2.5	2.5	2.5
Coolant		-	R407C			
Coolant filling AEROTOP TR		kg	16	16	21	21
Coolant circuit oil		-	Ester Oil			
Oil quantity		l	4.1	4.1	4.1	4.1
Weight heat pump		kg	375	392	460	468
Sound Level [3] Outdoor installation						
Standard configuration with Hoods [4]	Lwa	dB(A)	66.0	70.0	67.0	70.0
Sound Level [3] Indoor setup						
Sound power level On suction	Lwa	dB(A)	65.0	67.0	66.0	70.0
On exhaust	Lwa	dB(A)	59.0	61.0	64.0	67.0
Inside	Lpa	dB(A)	59.0	59.0	63.0	68.0

1) Min: Δt max= 10 K, with PHW-preparation Δtmax = 5 K. (V' [l/h]= Qh[kW]/(4.18*Δt[K]*ρ[kg/l])*3600).
2) At maximum fan rotational speed.
3) Measuring according to DIN ISO 9614-2. Sound power level is a property of the source of noise and therefore dependent on the distance; it describes the totality of the sound power of the corresponding source radiating in all directions. Information to determine the noise level see planning documents.
4) With HI and HO Hoods

Technical Data

AEROTOP T07RX-T10RX

Heat pump type AEROTOP T..RX			**T07RX**	**T10RX**
Heating operation			For A2/W35	
Heating Capacity	Qh	kW	6.4	9.1
Power input	Pel	kW	2	2.8
Performance number EN14511	COP	-	3.3	3.3
Cooling operation			for A35/W18	
Cooling Capacity		kW	6.7	9.7
Power input		kW	2.6	3.7
Condenser			Scroll hermetically	
Maximum current consumption	Imax	A	17.3	23.5
Start-up current with smooth starter	VSA	A	40	40
Current intensity with blocked rotor	LRA	A	76	114
Current connection		V-f-Hz	230-1-50	
Fuse WP		A/T	20	20
Fuse WP with electrical insert: 2 kW		A/T	32	40
Fuse WP with electrical insert: 4 kW		A/T	40	50
Fuse WP with electrical insert: 6 kW		A/T	50	63
Condenser, heater side			Material: Chrome steel AISI 304, 1.4301	
Hydraulic connections	IG	R"	1”	1”
Water content incl. connection hoses AEROTOP T		l	2.6	3
Volume stream heating operation nom/min [1])		l/h	1500/568	2100/835
Pressure loss heating operation		kPa	28.3/4.4	32.9/4.1
Minimum volume stream cooling operation (Δt= 5 K)		l/h	1'150	1'670
Pressure loss cooling operation		kPa	17.4	16.1
Max working pressure	p	baar	3	3
Evaporator/fan				
Volume stream		m^3/h	2'500	3‘300
Available pressure [2)]		Pa	150	92
Power consumption fan [3)]	P	kW	0.035	0.100
Maximum current consumption fan	Imax	A	1.6	1.6
Coolant		-	R407C	
Coolant filling AEROTOP TRX		kg	5	7.5
Coolant circuit oil		-	Ester Oil	
Oil quantity		l	1.1	1.36
Weight heat pump		kg	207	250
Sound Level [3)] Outdoor installation				
Standard configuration [4)]	Lwa	dB(A)	62.0	65.3
Sound Level [3)] Indoor setup				
Sound power level On suction	Lwa	dB(A)	53.0	56.0
On exhaust	Lwa	dB(A)	48.0	53.0
Inside	Lwa	dB(A)	50.0	54.0

1) Min: Δt max= 10 K, with PHW-preparation Δtmax = 5 K. (V' [l/h]= Qh[kW]/(4.18*Δt[K]*ρ[kg/l])*3600)
2) At maximum fan rotational speed.
3) Measuring according to DIN ISO 9614-2. Sound power level is a property of the source of noise and therefore dependent on the distance; it describes the totality of the sound power of the corresponding source radiating in all directions. Information to determine the noise level see planning documents.
4) With Rain Guard

Conformity Declaration

EC DECLARATION OF CONFORMITY

The manufacturer: **Termogamma SA**

Address: Via Industria
CH-6710 Biasca

declares that the following products:

Air/Water Heat Pumps
Types:

Aerotop T07
Aerotop T10
Aerotop T12
Aerotop T14
Aerotop T16
Aerotop T20
Aerotop T26
Aerotop T32
Aerotop T35

meet the following guidelines and directives:

EC Directives

97/23/EC: 1997	EC Pressure Equipment Directive
2006/95/EC: 2006	EC Low Voltage Directive
2004/108/EC: 2004	EC Electromagnetic Compatibility Directive

Harmonized EN:

EN 378: 2008
EN 60529: 2000
EN 60335-1:2002 + A11: 2004 + A1: 2004+ A12: 2006 + A2: 2006
EN 60335-2-40: 2003 + A11: 2004 + A12: 2005 + A1: 2006
EN 60335-2-21: 2003 + A1: 2005
EN 50366: 2003 + A1: 2006
EN 55014-1: 2006
EN 55014-2: 1997

Biasca, **2 ottobre 2012**

TERMOGAMMA SA

Management

Dr. Ing. V. Curti

D. Buser

Conformity Declaration

EC DECLARATION OF CONFORMITY

The manufacturer: **Termogamma SA**

Address: Via Industria
CH-6710 Biasca

declares that the following products:

Air/Water Heat Pumps
Types:

Aerotop T07C
Aerotop T10C
Aerotop T12C

meet the following guidelines and directives:

EC Directives

97/23/EC: 1997	EC Pressure Equipment Directive
2006/95/EC: 2006	EC Low Voltage Directive
2004/108/EC: 2004	EC Electromagnetic Compatibility Directive

Harmonized EN:

EN 378: 2008
EN 60529: 2000
EN 60335-1:2002 + A11: 2004 + A1: 2004+ A12: 2006 + A2: 2006
EN 60335-2-40: 2003 + A11: 2004 + A12: 2005 + A1: 2006
EN 60335-2-21: 2003 + A1: 2005
EN 50366: 2003 + A1: 2006
EN 55014-1: 2006
EN 55014-2: 1997

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Conformity Declaration

EC DECLARATION OF CONFORMITY

The manufacturer: **Termogamma SA**

Address: Via Industria
CH-6710 Biasca

declares that the following products:

Air/Water Heat Pumps
Types:

Aerotop T07R
Aerotop T10R
Aerotop T12R
Aerotop T14R
Aerotop T16R
Aerotop T20R
Aerotop T26R
Aerotop T32R
Aerotop T35R

meet the following guidelines and directives:

EC Directives

97/23/EC: 1997	EC Pressure Equipment Directive
2006/95/EC: 2006	EC Low Voltage Directive
2004/108/EC: 2004	EC Electromagnetic Compatibility Directive

Harmonized EN:

EN 378: 2008
EN 60529: 2000
EN 60335-1:2002 + A11: 2004 + A1: 2004+ A12: 2006 + A2: 2006
EN 60335-2-40: 2003 + A11: 2004 + A12: 2005 + A1: 2006
EN 60335-2-21: 2003 + A1: 2005
EN 50366: 2003 + A1: 2006
EN 55014-1: 2006
EN 55014-2: 1997

Biasca, **2 ottobre 2012**

TERMOGAMMA SA

Management

Dr. Ing. V. Curti

D. Buser

Conformity Declaration

EC DECLARATION OF CONFORMITY

The manufacturer: **Termogamma SA**

Address: Via Industria
CH-6710 Biasca

declares that the following products:

Air/Water Heat Pumps
Types:

Aerotop T07RX
Aerotop T10RX

meet the following guidelines and directives:

EC Directives

97/23/EC: 1997	EC Pressure Equipment Directive
2006/95/EC: 2006	EC Low Voltage Directive
2004/108/EC: 2004	EC Electromagnetic Compatibility Directive

Harmonized EN:

EN 378: 2008
EN 60529: 2000
EN 60335-1:2002 + A11: 2004 + A1: 2004+ A12: 2006 + A2: 2006
EN 60335-2-40: 2003 + A11: 2004 + A12: 2005 + A1: 2006
EN 60335-2-21: 2003 + A1: 2005
EN 50366: 2003 + A1: 2006
EN 55014-1: 2006
EN 55014-2: 1997

Biasca, **2 ottobre 2012**

TERMOGAMMA SA

Management

Dr. Ing. V. Curti

D. Buser

Conformity Declaration

EC DECLARATION OF CONFORMITY

The manufacturer: **Termogamma SA**

Address: Via Industria
CH-6710 Biasca

declares that the following products:

Air/Water Heat Pumps
Types:

Aerotop T07X
Aerotop T10X

meet the following guidelines and directives:

EC Directives

97/23/EC: 1997	EC Pressure Equipment Directive
2006/95/EC: 2006	EC Low Voltage Directive
2004/108/EC: 2004	EC Electromagnetic Compatibility Directive

Harmonized EN:

EN 378: 2008
EN 60529: 2000
EN 60335-1:2002 + A11: 2004 + A1: 2004+ A12: 2006 + A2: 2006
EN 60335-2-40: 2003 + A11: 2004 + A12: 2005 + A1: 2006
EN 60335-2-21: 2003 + A1: 2005
EN 50366: 2003 + A1: 2006
EN 55014-1: 2006
EN 55014-2: 1997

Biasca, **2 ottobre 2012**

TERMOGAMMA SA

Management

Dr. Ing. V. Curti

D. Buser

Notes

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Service:

ELCO GmbH
D - 64546 Mörfelden-Walldorf

ELCO Austria GmbH
A - 2544 Leobersdorf

ELCOTHERM AG
CH - 7324 Vilters

ELCO-Rendamax B.V.
NL - 1410 AB Naarden

ELCO Belgium n.v./s.a.
B - 1070 Anderlecht

ELCO Italia S.p.A.
I - 31023 Resana